

CHRISTIANITY AND SCIENCE

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by CHARLES E. RAVEN, D.D., D.Sc.
Fellow of the British Academy

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CHRISTIANITY AND SCIENCE

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ABOUT WORLD CHRISTIAN BOOKS

TODAY it is not enough to believe; it is necessary also to understand. From every part of the world comes the demand for books that will help the Christian to understand his faith, to find the answers to the questions that he and other men are asking, and to know how to present the faith to others. The series WORLD CHRISTIAN BOOKS is planned to help in this particular area of Christian need. The books are directed in the first place to the "younger churches," but the old distinction between younger and older churches no longer really holds. All churches are faced by the same problems. In all countries the same questions are being asked. The series is specially planned for those who are called to preach and teach, in the hope that the materials given in these books may help them to carry out their task more effectively. But the aim has also been to write so simply that ordinary members of the church who wish to study their faith may be able to use these books as individuals or in study groups and so to grow in knowledge and understanding.

The books are being published first in English, but it is intended that as soon as possible they should be made available in the main languages of the Christian world. Writers have been chosen from various countries and various branches of the church, with special emphasis on the younger churches. This means that there will be a variety of voices, but the aim and the hope is that through many minds and many tongues the faith of the church in its one Lord may be clearly set forth.

STEPHEN NEILL
General Editor

How to Use This Book

IT IS RECOGNIZED by the Editor and Publishers that *Christianity and Science* is more difficult than the majority of the books appearing in the WORLD CHRISTIAN BOOKS series. But, in view of the importance of the subject and the increasing influence of science in the modern world, it seemed well to publish a book on the subject among the first volumes of the series. Older people who have not had much scientific training will do well to remember that this is the kind of thing that young people today are learning from the age of thirteen onwards, and that much of what seems difficult to their parents is to them child's play.

Canon Raven—one of the very few living men who is both a distinguished scientist and a distinguished theologian—has written a completely honest account of the difficulties that have arisen between religion and science, and of the path by which a scientist may find it possible to return to faith. It is thought that those who have not much knowledge of science will find the following the best method by which to study the book:

Begin by reading carefully Chapter 1, and then Chapters 6—9.

Next read the book straight through, with constant reference to the Glossary of technical terms, and the annotated list of names.

It is believed that those who follow some such method will find that there is much in the book which they can understand, and that at the end they will find themselves well rewarded for the trouble they have taken.

S. N.

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Chapter I

Introduction

IN THESE DAYS when the relation of an organism to its environment and of men to the circumstances and culture of their age and country have been so widely recognized, it is natural for us to ask whether a similar relatedness does not affect our task in proclaiming the Christian faith. "How far," we are tempted to inquire, "does the present divorce between the faith and great masses of people who are nominally Christian spring from the fact that Christians express the gospel in the language and ideas of a long bygone age?" We who have lived long enough to see almost every object in common use from a razor to a coach transformed several times within our own memory have the duty of inquiring whether our religious experience and its expression may not require modification when held under conditions that have been so astonishingly changed. Living creatures, if they cease to correspond with their environment, die: that is the very definition of death. Does a similar principle hold in things of the mind and spirit?

We hear much of the eternal gospel and of Christ "the same yesterday, today, and for ever," and we are so sure

of the permanent truth and relevance of the Scriptures that at first sight we are apt to claim that here is an exception to the rule. Our experience is close enough to that of the biblical folk for us to recognize and find repeated in our own time what they have known and recorded. There is, obviously, a sense in which history repeats itself, an abiding element in a world of change. The things of God surely remain when all else fades and perishes.

That is true enough. Psalmist and prophet are right in maintaining the unwearying sameness of God, and in contrasting his changelessness with our subjection to change. Nevertheless, though our communion with him, our awareness of his majesty and care, do not alter, if we are to express and communicate them we must do so in contemporary and therefore constantly varying form. Otherwise we shall speak in an unknown tongue and our hearers will not be edified. It is the constant duty of the church and of its members to see that their interpretation, in thought and words, in forms of worship and conduct, is accurate and appropriate, true in itself and easily understood by those who hear. It is widely recognized that this needs to be done, as the long series of modern versions of the Bible and the rapid and wide changes in the music and setting of our services abundantly prove. But that it is done with a clear desire to commend the faith to an intelligent representative of twentieth-century science and thought is much less evident. It would often seem that preachers and students of the art of worship were more concerned with the orthodoxies and the ceremonies of earlier times than with discovering how modern man can best comprehend and worship God.

Unfortunately in view of this need for a theology for today and of the hesitation of many Christians in accepting that need, there can never have been a time when the general outlook and interests of humanity have changed so radically and so rapidly as in the past century. This is especially due to the great movements of thought and

habit which we sum up by the word science. During the past three centuries, and with a breathlessly rapid progression during the past hundred years, the exploration and classification, the measurement and analysis of the physical universe have produced a knowledge and control of it beyond imagination. To the older ones among us, for whom radio and the airplane were in our youth merely dreams, for whom atomic structure and electronics were wholly unknown, it was unbelievable that the fantasies of a Jules Verne or an H. G. Wells should have been surpassed in our own lifetime; and that the change in the practical meaning of space and time, first introduced by the railway engine, and for the villager by the bicycle, should have led so quickly to the racing car, the speedboat, and the jet plane, to television and guided missiles.

It is small wonder that philosophy and theology should have failed to keep pace with such developments. It is hardly surprising that some Christians, despairing of the attempt to rethink and restate our basic convictions, should have turned away from the attempt and magnified the traditions of the past, precisely because these traditions represented an escape from the rapid changes brought about by science into the unchanging truths of religion. The claim that by so holding to the past we were moving from the temporal to the eternal was not well founded. There is nothing necessarily eternal about what is ancient, whether it be the system of the Scholastic philosophers of the Middle Ages or the doctrines of the Reformers of the sixteenth century. The experience, man's encounter with the ineffable, abides: it is the essence of our human status that we are, as the author of Genesis expresses it, "in the image of God" and able to reflect something of his radiance. But the interpretations change: the language of Isaiah is not quite that of St. Paul; the thought-forms of a Greek philosopher differ from those of a Christian saint of the Middle Ages; the theology of a Father of the early

church differs from that of a Protestant scholar of the nineteenth century.

With the changed cosmology, biology, psychology, and anthropology of the twentieth century, a fresh theological approach to the formulation of the faith is inevitable. It is the purpose of the pages that follow to indicate the conditions which encourage and may well direct such formulation.

chapter 2

Science: Its Origin and Development

●OUR FIRST TASK, if we are to consider the relation of religion to science, is to examine the character and scope of the scientific movement. That this movement has profoundly influenced the whole thought and life of mankind needs no proof. We have all of us experienced its effect upon the traditional ideas and the ancient religions of humanity; we are all face to face with the problems of an industrial civilization which is the product of applied science; we are living in an age when new discoveries, ranging from the airplane and the hydrogen bomb to the electronic microscope and television, are transforming the whole framework of our existence and changing our whole scale of space and of time. These facts are familiar enough; and when we speak of science we are apt to feel a shudder of awe, as if it were the god or demon which had thus terrifyingly created a new world. That science is indeed regarded with almost superstitious awe, that the scientist takes the place of the oracle or the magician of old time, and that the prestige of scientific research is proclaimed in the columns and exploited in the advertisements of every daily paper, is familiar to us all.

When we inquire into the nature of science, we are at first inclined to associate it with some unique and secret method of research, invented perhaps by the thirteenth-century bishop Grosseteste and perfected by the sixteenth-century astronomer and mathematician Galileo, a method which involved a new technique of observation and experiment, of verification and hypothesis, and which enabled man to replace the old concept of a chaotic world by the exactitudes and rigidities of the universe of natural law. It is difficult not to blame some at least of the historians of science for encouraging an almost mystic reverence for the scientific method; we can at least agree with one of the most thoughtful of them when he points out, not only that there is nothing peculiar or specially sacred in it, but that unless accompanied by the imagination of the seer and the insight of the artist it has never achieved any discovery of outstanding importance. For of course the process of experiment, of the observation and testing of its results, and the subsequent repetition and checking and defining, is as old as human nature. No one can have discovered the use of a wheel or the structure of an arch, the growing of corn or the baking of a cake, except by an identical sequence of actions. It is nothing but what we call common sense; and every child uses it when he builds a house of cards or discovers that wood floats on water and iron sinks.

Moreover, it is the universal means for solving our problems in every field of intellectual effort. If you are investigating a subject in physics or chemistry, the type of question to which it most obviously applies, you employ precisely the same process as if you were researching into the behavior of a bird, or an episode in history, or the religious experience of a saint. Assemble your data; study and examine your data; compare and classify them; formulate a hypothesis; test it by experiment; verify it by comparison with other possibilities; check your results by reference to similar events in cognate subjects and relate

them to the whole body of relevant knowledge. And, if this sounds elaborate, remember that it is what you do, perhaps without noticing it, whenever a friend asks your opinion.

If any scientist objects that in such parallel cases you cannot exclude aesthetics and imagination, the reply is obvious. All scientists, even the most abstract mathematicians, use the methods and language of art to define their results; and imagination and insight in arriving at them. Whatever scientists, or artists either, may affirm to the contrary, any normal human activity involves the whole self: the aesthetic and the intellectual elements cannot be parceled out into separate faculties and employed alternatively and in isolation.

The scientific method, in its simplest form, goes back to the beginnings of the race. It was highly developed in the astronomical observations of Egypt and in the practical inventions of China, and was definitely formulated by the Greeks. Few fuller examples of its use can be found than that illustrated by the measurements and proportions of the Parthenon at Athens. In architecture this supreme achievement was plainly the result of a long and carefully studied process, in which art and science were fully and happily combined. Rome took over, elaborated, and fixed in forms of law the method and its results—with a consequent standardization and loss of creative spontaneity. Western civilization is still powerfully influenced by its Roman inheritance.

This influence had the effect of giving a supreme and exaggerated importance to tradition. The lore of the past held sway, not only in legal and ecclesiastical affairs, but in medicine and natural history; and its authority was accepted without question. Drugs traditionally used by ancient kings and their magic antidotes to poisons were treasured and prescribed, even though no one knew how to identify the strange vegetable and mineral stuffs that composed them. The vast collections of stories about

plants and animals which filled the herbals and bestiaries of medieval times, and still survive in common speech and the symbolism of advertisements, were so sacred that neither the genius of Roger Bacon nor the knowledge of St. Albert could challenge their authority. Science, if by that is meant the use of observation and induction, was scarcely anywhere applied to the study of nature or to more than a few technical developments in mining and manufactures. Not till the late fifteenth century, when the zeal for antiquity uncovered the evidence of classical art and letters, did the contrast between the past and the present send men back first to an intensive study of the masters of Greece and Rome, and then to the identification of the objects of their interest, their drugs and flowers, their philosophy and religion. The Renaissance was the result of that return: out of it ultimately grew the scientific movement.

Even so, it took more than a century of exploration in many fields before the new outlook succeeded in its challenge to the tradition. First there was the recovery and printing of Greek and Jewish philosophy, Plato and Plotinus and the Cabbala, which led up to the speculative theology of the Italian scholars, and so to Erasmus and Luther and the Reformation. Then the Greek physician Dioscorides and the Latin naturalist Pliny were translated and commented upon by a number of students of medicine and plant life; and this produced the herb gardens of northern Italy and the herbals of the early German botanists, and so made possible the great *History of Animals* written, and wonderfully illustrated, by Conrad Gesner of Zurich, who may be called the first modern biologist. Meanwhile the work of the astronomer Copernicus, though for long almost unknown, was followed by the observations of Tycho Brahe and Kepler, and by the experiments and researches of Galileo. Such developments were no doubt tentative and still partial; but they are evidence of the fact that adventure and exploration were not confined

to the voyages of the navigators or to the discovery of America.

In the seventeenth century, Francis Bacon, the Chancellor of England, wrote the many books that together composed his *Novum Organum*, in which he argued that all natural knowledge must be treated as a whole, that the various sections and subjects must be surveyed and studied together, and that, though religion and revelation were on a different plane, the proper method must be that of exact observation, careful classification, and the inductive disclosure of general principles. After him the Czech bishop John Amos Comenius traveled widely over Europe trying to establish colleges for the universal pursuit of wisdom, colleges in which religion, arts, history, science, and philosophy should be studied in co-operation. His visit to Britain was one of the events which led up to the foundation of the Royal Society. Similar institutions were set up in many other centers; and thus the scientific outlook was spread over Europe, and the modern industrial age was begun.

If we attempt to estimate the religious effects of the New Philosophy at the close of the seventeenth century, we must first observe that, in spite of occasional acts of persecution, the churches supplied most of the leaders of scientific inquiry, and these men, mainly sons of the Reformation, were enthusiastically Christian. In Britain, for example, almost every one of the men of genius who brought the country to a position of acknowledged leadership, and founded many branches of science, subscribed to the belief that in the study of the wisdom of God in his creation they were striving to think God's thoughts after him. And, under the inspiration of the Cambridge Platonists and not a few of the bishops, a Christian philosophy of organism was formulated by Ralph Cudworth and popularized by John Ray. These men rejected the teaching of the French philosopher Descartes that animals were only complicated machines, and that scientific studies must

be confined to what could be weighed or measured. They did not ignore the material elements in nature, but insisted that living creatures and their behavior could only be explained in terms of mental and vital activity. Thanks to their efforts it looked as if the thought of the new age would be successfully reconciled with the Christian faith.

With the eighteenth century this prospect faded. Biological studies, which had in fact led the way hitherto, had now reached a point at which no further progress could be made until the basic problems of physics and chemistry had been examined and solved. Isaac Newton had shown how far-reaching could be the type of research which had led him to his theory of gravitation, and how rewarding were mathematical studies and quantitative analysis. Within a few years, as one great field naturalist expressed it, "there was no room for natural philosophy: mathematics hath engrossed all." And this continued to be the case throughout the greater part of the century. In the organic field there was progress in classification and to some extent in anatomy and physiology; but the problems of form and function, of adaptation and behavior, already propounded were virtually ignored. The energies of science went into the fields of chemical and physical research, and into the application of its results to industry and engineering, to manufactures and the supply of human needs. By the end of the century a predominantly rural and agricultural world was being replaced by the urban industrialism of today; and the machine had become for Western men the symbol and instrument of their wealth.

It is needless to emphasize the vast effects of this revolution upon the environment of mankind, and consequently upon his way of life, his character, and his beliefs. That his material prosperity, his health, his numbers and his length of days, his knowledge, power, and range of interests have all been vastly increased, goes without saying; and had already become evident by the end of the eighteenth century. The traditional codes of morals and of

religion, like the institutions by which they were represented, failed to adapt themselves effectively to the new conditions. Already at the close of the seventeenth century the belief in a universal system of natural law had given ground for the Deists' concept of God as the supreme potentate and lawgiver, himself aloof from and untouched by the ordered processes of his universe, processes which the rational man could observe and define and obey. By the end of the eighteenth century the evidence of purpose manifested by this reign of law had been accepted as the favorite, indeed almost the sole, evidence of religion in the natural world; the universe was taking on the appearance of a huge and intricate but divinely controlled machine; instead of thinking of God as the great ruler, men began to think of him rather as the designer and engineer of the universe. It is significant that men of high authority in Christendom turned back to the ancient analogy of the watchmaker and the watch, when they wanted to describe the relation of God to his creation or to define his character and intention. Few were as yet ready to follow Julien de la Mettrie and to maintain that man himself was only a machine; but science had already begun to insist that its own interest was confined to what could be weighed and measured, and to hint that no other touchstone of reality was really needed for the exposition of the universe. That the great Laplace, when Napoleon asked why he had omitted all reference to God in his cosmogony, replied that he "had no need of that hypothesis," may not be historically true: it is nonetheless typical of the attitude of his fellow scientists.

It is well for us to recognize, before we go on to the later phases of the conflict between science and religion, that even at this point the Christian reaction to the new outlook was neither effective nor worthy of its own faith. Churchmen had never really faced the issues raised by the problems of imperfection and evil in the natural order. Indeed their belief in God as omnipotent and all-wise

forced them to deny the existence of the problem: his realm must be free from all blemish; his design must be faultless in its performance. In consequence their books and sermons about nature are full of examples of beauty and worth, and of the wisdom and skill displayed in its mechanism; they are blind to the evidence of cruelty and rapine, of maladjustment and frustration. St. Paul's insistence that power and wisdom characterize the Jewish and Greek rather than the specially Christian concept of God (1 Corinthians 1:22-24), and that creation is incomplete and in travail (Romans 8:20, 22), judging by the amount of attention paid to it, might never have been expressed.

It was this failure by Christians to present their own true picture of God as Father "whose nature and whose name is love," and so of his world as home and school, the training-place of his children in freedom and service, that involved them in the controversies and disappointments of the next century. Archdeacon Paley, more perhaps in his *Natural Theology* than in his *Evidences*, shows this failure very plainly: he piles up a huge series of examples to prove how accurately the great Original has produced and the great Artificer maintained each creature and each several part so as to fulfill the most intricate functions to perfection. But the presence of suffering and death and the fact that the machinery does not always run smoothly are matters which he can only deny or evade. His influence ran on during most of the nineteenth century, and was sufficient in itself to prevent the church, and indeed Christendom generally, from learning from the new discoveries which that century was to bring.

chapter 3

The Conflict of Science with Religion

THE ACTUAL CLASH between science and religion which characterized the nineteenth century took place on an issue that had already brought the French naturalist Buffon into trouble with the Roman Catholic theologians of the Sorbonne. He had been accused of using language about the origin and age of the world that contradicted the teaching of Scripture. Now a similar controversy broke out over the contrast between the world-story of a modern geologist and the account of the days of creation in Genesis. This had been a difficulty even from the earliest days of geology: it had seemed impossible to reconcile the evident changes in the structure of the earth, the submerged forests and the fossils in the mountains, with the date of the creation (4004 B.C.) which had come to be widely accepted in the Christian churches; it had been hard to make Noah's flood solely responsible for the marine shells and petrified fishes found inland and hundreds of miles from the sea; it was not easy to believe that multitudes of prehistoric creatures made by God had been allowed to perish without survivors; the early books on the subject

are full of ingenious but unsatisfying explanations. Now, when the record of the successive ages had been worked out by geology, most scientists found it impossible to accept the biblical stories as literal history.

So when William Buckland, the Oxford geologist, in his *Bridgewater Treatise* presented to the world of the later 1830's a careful but uncompromising account of the gradual changes of the earth, of the series of its rocks and the emergence of new forms of life, he was assailed with violent abuse by Christians of all shades of opinion. It was evident that in general the orthodox still accepted the beliefs that creation had taken place at a precise and calculable date as a series of divine acts in a definite sequence; that every species had come into being at that time; and that no additions to the number had been created subsequently. Lamarck at the beginning of the century had given clear and verifiable evidence for a progressive and still continuing evolution. He proved by numerous examples how one species was related to another, and showed how a process of development could be traced through the fossil remains preserved in the successive strata of the earth's surface. This development, beginning with very simple forms of plant and animal, led on through long ages to higher and more complex types, and so to our present flora and fauna. But the story was probably not yet complete. His contemporaries, Goethe, Geoffroy Saint-Hilaire, and Erasmus Darwin, had independently arrived at similar convictions; in learned circles such ideas were widely accepted, but to the churches they seemed to contradict the inspired record in the Bible and so to involve an apostasy.

Before we go on to describe the subsequent confusion and controversy, it is important to realize that revolutions and upheavals were not confined to the scientific and intellectual fields. Industrialism, the fruit of the application of science to the practical problems of life, was shattering the relics of the old feudal and agricultural system in Eu-

rope. In France, the Revolution and the Empire had effected changes more sudden and radical than elsewhere: there had been thirty years of experiment and a large measure of social readjustment. But elsewhere, though there had been many pioneers and much protest, the bewilderment of statesmen and the affirmations of the economists that no remedy could be found prevented any serious attempt at reform and produced the social evils and bitterness of the "hungry forties." If men were tempted to cling to a conservative tradition in religion, we must remember that they were living in times of far-reaching change, when it often seemed as if nothing stable or secure was left in the world.

So the controversy over Genesis spread into wider fields, and as the critical study of ancient documents came to be applied to the Bible, it seemed to a great many that all the foundations of the faith were being undermined. Over much of the Continent of Europe it seemed impossible to be both a political liberal and a Christian: churchman and conservative became the natural opposite of skeptic and progressive; and 1848, the year of revolutions in nearly every country, underlined the antagonism. Even in Britain, where the threat of civil strife was serious but ineffective, there was widespread alarm and a general tendency to separate the churches from any concern with social reform or political radicalism. At a time when all life was being reshaped, too many Christians regarded any innovation with suspicion, gave an exaggerated emphasis to the authority of Scriptures and the church, and by their rigid conservatism fostered the tendency to identify Christianity with obscurantism in thought and reaction in politics.

Yet everywhere there were those in the churches who kept the workers in touch with religion, took an active part in advocating co-operative movements in trade and social reforms in government, and set themselves to study the new ways of thought and life and to formulate a liberal

and scholarly theology. From such men came not only a deeper recognition of corporate responsibility but definite leadership in devising means of corporate welfare; and among them were many who found it possible to interpret the gospel in terms consistent with the new knowledge, and to accept with sincerity and relief the doctrine of an ever-working, all-sustaining God. When the crisis came, these men were ready to meet it.

The crisis came in 1859 when Charles Darwin did for biology what Isaac Newton had done in 1687 for cosmology. The great thesis propounded in the *Origin of Species* provided a general statement which drew together a mass of data—and of speculations—set them out in a coherent formula, and so gave a single and intelligible explanation to a process that had never before been so simply and exhaustively described. Just as Newton's "law of gravity" showed a single reason which accounted both for the fall of an apple and for the movements of the solar system, so Darwin, by his hypothesis of natural selection acting upon the variability of individual organisms in the struggle for existence, produced a theory which could be verified by a mass of data ranging from the fauna of the Galapagos Islands in the Pacific Ocean to the breeding of prize cattle, and which explained phenomena like the fertilization of the orchids or the warning color of the wasp or the eyed train of the peacock.

Here, moreover, was a principle with a strong natural appeal to the time and place of its publication. The doctrine that life was a battle and that victory went to those best fitted to receive it was congenial to those engaged in competitive industry. The sad picture of the slaughter of the weak appealed to the sentimentality of mankind, while the belief that this was a law of nature seemed to justify them in doing nothing to prevent it; the evidence that each new development had its utility value and contributed to the welfare of the race fostered confidence in the inevitability of progress. When Darwin extended his work

to include the theory of the descent of man from apes, he provided an appropriate explanation of those baser features of human conduct, which affronted the proprieties and shocked the moral sense, as a survival in man of the characteristics of his animal ancestors. When his brother-in-law Francis Galton showed that genius itself was a variation handed on in certain families, he ministered to the pride of birth of his readers and to the claims of white imperialism. It is hardly surprising that, in spite of the dullness of his own exposition and the exaggerations of his champions' defense of it, the contemporary world so readily accepted Darwin's theory.

Not that the theory was above criticism. Several of its contributory arguments—sexual selection, for example—are far-fetched and precarious. Many of its details are now open to correction. Its general contentions that killing is universal and selective, that the beauty and order and design in nature are solely utilitarian, that complex developments depending on the simultaneous accomplishment of many changes can be explained in terms of randomness, these would be modified or rejected by almost all modern students. But that in the main a true explanation of the origin and development of organic life must regard the creative process as an evolution from lower to higher, cannot be challenged. Like Redi's rejection of the traditional belief in spontaneous generation, it stands as one of the permanent achievements of biological science.

It is one of the ironies of history that Christendom, which by its own Scriptures was committed to belief in an ever-working God (e.g., John 5:17), in a progressive revelation still incomplete (John 16:13), in suffering as the characteristic of the creature (Romans 8:18–23) and the means to perfection (Hebrews 2:10), and in fuller life as the divine purpose (John 10:10), should have so signally failed to maintain this belief when faced with the challenge of Darwinism. Instead, it protested, on the ground that creation was a series of special acts of which

the making of Adam was the climax, that the concept of evolution contradicted the revelation in the Bible, and that the generally accepted argument from design involved a mechanistic interpretation of the universe, every part of which was perfectly adjusted by the divine Artificer to its special function. To preserve gaps in the creative process (at the creation of the first life or of the first man) in order that God's direct action might be recognized at these points; to maintain the total inerrancy of Scripture, since Christianity was "the religion of the Book"; and to insist upon the ancient analogy of the watchmaker and the watch—the only form of teleology incompatible with Darwinism—this was too often the chief objective of the spokesmen of traditional orthodoxy.

After its first outbreak in 1860, the Darwinian controversy became sharper and more destructive. As almost always happens, the struggle produced bad effects on both sides. Haeckel and Weismann exaggerated special elements in the theory, which gave it a more rigidly materialistic emphasis and eliminated from it the influence of environment and of use and disuse. T. H. Huxley, who was principally an anatomist and taxonomist and knew little of living organisms, stressed the gladiatorial picture of nature "red in tooth and claw with ravin," and prompted the cleavage between the scientists of museum and laboratory and the observers of wild life in the field. On the other side, Christians tended to dwell only upon the contrasts between nature and revelation, the temporal and the eternal, the bodily and the spiritual; and so to fail to see that, through their Christian belief in "the Word made flesh," these contrasts could be reconciled in the essential unity of the Creator and the Redeemer. For the contrast, and the dualism which that contrast fosters, are obvious and elementary: every religion and every child recognizes them. It is the special glory of the Christian faith to maintain that in Christ the contrast has been resolved, that in him God and man have been made one; that the universe

is sacramental through and through; and that the outward and visible is the symbol and instrument of the inward and spiritual.

It was by the acceptance of this contrast and separation that an interim truce was arranged. Scientists were ready to mitigate or conceal the extent to which their basic ideas contradicted the tenets of Christianity, provided that Christians abstained from interfering with the freedom of research or prescribing its conclusions. What some would call a "gentlemen's agreement" and others "a conspiracy of silence" was widely observed at the close of the century. It was obvious that in fact most scientists accepted belief that the universe was a closed system, to be interpreted on mechanistic analogies and in terms of weight and measurement, a system which could be exactly and objectively described, analyzed into its chemical-physical components, and eventually taken to pieces and reconstructed. On this showing, man himself would soon be proved to be nothing but a complicated automaton, whose character and actions were wholly determined, and whose ethics and religion were merely self-protective mechanisms. The gaps in the system were being rapidly closed, and the world of reality would soon be shown to be the world of the materialist. Plato's judgment that the world of sense-perceptions was a world of appearance, while the world of thought was alone real, had been reversed. For the nineteenth-century scientist the world of the senses was fact; all else was fancy.

Two further developments increased the difficulties of the religious world. The recovery of the work of the Abbé Gregor Mendel, and the consequent verification of the Mendelian laws of inheritance, seemed not only to supply a full account of the mechanism of heredity but to rivet upon mankind the fetters of a complete determinism. Two blue-eyed parents cannot produce a brown-eyed child; two kleptomaniac parents cannot produce an honest child: each individual is only and always what his gametes make

him; freedom and responsibility are illusions. So the argument ran, and research into a multitude of breeding experiments, vegetable and animal, and into the pedigrees of a number of human families, brilliant and mentally defective, night-blind or brachydactylous, seemed to give it abundant confirmation.

So too in the newly developed science of psychology. The examination of hysteria and hypnosis, the study of nervous diseases and the functioning of the brain, the effects of cocaine and other drugs, all seemed to yield results explicable in terms of physics and chemistry. It is to the lasting honor of Sigmund Freud that he refused to accept a material or purely physical cause for all the psychic abnormalities with which he was confronted. But his own theories, while allowing for psychogenic influences upon behavior, yet insisted upon a strict determinism, regarded religion as illusion, and tended to treat the non-material as analogous with, if not exactly similar to, the material. Moreover, his familiar picture of the subconscious as the submerged and basic region of the self, an underworld tenanted by primitive lusts and repressed desires, suggested if it did not actually affirm that all the experiences that elude our full comprehension, the ecstasy of the mystic and the aspiration of the saint, are only a hang-over from a barbarous or infantile state and unworthy of serious appreciation.

It is hardly necessary to recall the revolutionary changes which were then taking place in the whole field of applied science, or the almost equally remarkable developments in social and international life. Inventions breaking down the barriers of space and changing the meaning of time ranged from the bicycle and the locomotive and the steamship to the telegraph, the telephone, and the X-rays; electricity was replacing coal, the dirigible balloon was almost in existence, atomic research was well begun. So too social studies were disclosing new types of evil for which no one individual was responsible, and which no one indi-

vidual could cure or wholly escape. The churches, which had appealed almost entirely to individuals, had no social message readily available, and a sense of helplessness and frustration was almost inevitable. Karl Marx, though not as yet widely influential, had formulated his theory of history; and the recognition of economic influences on the whole life of man, and even economic determinism, were rapidly spreading. The whole trend of thought favored a naturalistic or at best an agnostic interpretation of existence; there was no room in such science for any idea of God; and even those who maintained the value of religion and the validity of religious experience were driven to a dualism which allowed of two alternative, but perhaps overlapping, frames of reference for the interpretation of existence. That science and religion had nothing in common, and that the frontier between them must be strictly drawn, clearly defined, and scrupulously observed, was an affirmation commonly accepted. Those Christians who felt that such a separation of matter and spirit contradicted any incarnational theology or any sacramental system found themselves in a very unenviable strait. Those who attempted to hold on both to the findings of scientists and to the faith of the church found themselves in the position of a circus rider who, desiring to bestride two horses, should find them proceeding at top speed in opposite directions.

chapter 4

The Change of Climate

AAGAINST such exaggerated claims that science can give a full and exact account of reality, Christians could not but protest. Even when they chose wrong reasons for their opposition, they were surely right to oppose. For here was a philosophy which denied all element of purpose in the universe, reduced human beings to the level of robots, and denied all value to the experience of adoration. Such a philosophy might call itself agnostic; it was in fact and effect definitely atheistic.

Yet before this had been admitted or even generally recognized, the tide of opinion had begun to turn.

None of us who can look back to the year 1905 will fail to remember the day on which the daily papers carried a headline announcing Einstein's first theory of relativity. We noted the stir of excitement in the most exalted scientific circles; we read the popular accounts of the evidence by which his calculations had been verified; but we did not realize that an event of immense importance had been disclosed to us. Yet in fact, if the poet Blake was right in blaming Newton for having made mankind the slaves of the machine, it was this other great physicist who restored to mankind its freedom.

It lies outside the scope of this volume, and the capacity of its author, to describe the details of Einstein's theory or to set out the consequent developments. The general effect can be briefly expressed if we compare the definition of the universe under the Old Physics as "a three-dimensional world of space and time" with the definition under the New as "a multi-dimensional space-time continuum." Anyone attempting to translate the equations by which this concept is expressed into ordinary speech or to convey its meaning to any except a high-grade mathematician will find his task difficult—indeed in many cases impossible. Suffice it to say that it makes impossible the ancient Greek belief that man is the measure of all things, and the corollary of that belief that man can exactly analyze and objectively define the universe. Instead of a lordly detachment from which to survey and manipulate the cosmos, humanity found itself inextricably associated with its environment, and committed to a status in which knowledge was only relative and logic ultimately insufficient. Man is no longer to be regarded as a solitary individual, facing God and the universe as though he existed in separation from them, but as constituting a nexus of relationships with his environment and with other beings; part and parcel of his world, changing it and being changed by it; and that world includes, to some degree, God and the universe.

When Einstein's work was followed by Planck's researches and the formulation of the quantum theory to explain certain phenomena, inconsistent with the wave hypothesis of light, physicists found themselves in a position similar to that at the end of the seventeenth century. At that time two alternative and incompatible theories of light, one in terms of waves, the other of particles, held the field, Huygens and Newton being the respective champions. Now the familiar wave theory was again challenged; and it appeared that although certain phenomena could be explained by it, others were amenable to interpretation

only by the new quantum mechanics. It is still doubtful whether these two theories can be ultimately reconciled; and in his recent Gifford lectures the Danish physicist Niels Bohr has propounded a doctrine of complementarity, which admits that human logic can interpret ultimate problems only by means of two antithetical hypotheses. Heisenberg, one of the most brilliant of all contemporary scientists, has indeed declared that the modern physicist must be content to use four different mathematical systems, if he would deal adequately with all his data, and must admit that these four do not seem mutually consistent.

It is this discovery that, even at its most abstract, the human intellect cannot confidently formulate a single and comprehensive interpretation of its universe, which has effected the remarkable change in temper and outlook among the leading scientists. Anyone who has been familiar with the almost arrogant assurance of scientists at the turn of the century, and remembers how astonishing has been the succession of achievements since that time, will be amazed to discover today an attitude of profound humility, amounting in many cases almost to doubt as to the possibility of reaching any final certainty. A sense of mystery, an awareness of the strict limits of the human organism in its task of interpretation, a refusal to dogmatize, have become characteristic of recent developments.

Before we go on to consider the revolutionary effects flowing from these changes and producing a wholly new situation in the relationship of science to religion, it will be well to look at the other and more detailed changes which have taken place in the past fifty years.

The most evident and in some respects the most important of these affects the meaning and character of the concept of natural law. It was, as we have observed, the great achievement of the seventeenth century that it replaced the old chaotic world of witchcraft and miracle by the concept of a cosmos or realm of law and order. Before that time any unpredictable happening could be

assigned to fairies or demons, or described as what lawyers still call an "act of God." Thenceforward men were convinced that in the universe all events followed a sequence of cause and effect, and that it was possible by careful analysis to explain and to predict their course. In this age of science those who share the scientific outlook inevitably employ a frame of reference which decides for them the probability or otherwise of any particular happening, and are skeptical of anything that violates the normal procedure. Indeed by the beginning of the century the cosmos had become a lawyer's paradise, where there was no recognition of freedom or even variability, and where consequently the reality of any personal responsibility, and therefore of any real distinction between good and evil, was being strenuously challenged.

Now, from many angles of approach, this claim for the universality and rigidity of the so-called laws of nature has been assailed. Examples of this are very numerous. For example, Heisenberg, the brilliant German physicist, has defended a principle of indeterminacy at the atomic level; Udney Yule, the British statistician, has proved by a long examination of experiments in breeding new forms of wheat that, though Mendelian inheritance was usual, there was a small but universal element of unpredictable variation in organic life. Similar evidence from many other quarters has led to a general insistence that the term "natural law" means nothing more than a summary of statistical averages. This does not mean that we can no longer rely upon the value of such laws: we can still breed our poultry or horses with confidence according to them, just as an engineer, in spite of Einstein, can build his bridge by Newtonian mathematics. But the iron determinism which allowed of no exceptions has been broken. Practically the change may be small; in the world of scientific thought it is revolutionary.

A second change, hardly less important, has taken place in relation to the field of scientific activity. From Newton's

time onwards it became customary to restrict this field to the phenomena of sense-perception, indeed to such data as could be weighed and measured or examined in a laboratory. At the foundation of the Royal Society in 1662, its scope was defined as excluding religious and political subjects. But two centuries later the whole non-material realm was similarly banned; and science came near to being identified with physics and chemistry. It was thus that in biology the living organism came to be virtually ignored; the evidence of anatomy and physiology was primary; and behavior, if studied at all, was matter for the scientist only if it could be interpreted in terms of mechanism. In consequence, theories were propounded even by Darwin, and far more freely by his champions, which observers like Fabre, who had spent his whole time studying the lives of insects, felt compelled to reject. Life as they knew it could not be so rigidly and mechanically treated: in living organisms even at a lowly level there was an element of unpredictable self-determination or freedom.

It was with the development of psychology that this self-imposed limitation of the field of study showed its effects and provoked revolt. When Freud and his successors, following in this the example of all orthodox psychologists, insisted upon the reality of psychogenic or nonmaterial influences, they were met by the Behaviorists, who strove to maintain that all conduct could be interpreted in material terms and that the living organism was nothing but a complex automaton. J. B. Watson, the most aggressive of the school, based his whole case upon an obvious self-contradiction; for he insisted that what could not be perceived by the senses was in fact nonexistent; then claimed that all thought was due to material movements of the larynx and all emotion to similar movements of the viscera; and finally admitted that these movements could not be perceived by the senses, and therefore by his own definition did not exist. But his materialism remained fashionable in certain quarters.

There was in fact a long and serious attempt to banish from the province of strict science any psychology except that which dealt with the measurement and analysis of physical reactions; and long after medical schools had abandoned this attitude, it found support in laboratories. For it was obvious that if psychology in the wider sense were accepted as a science, the frontiers of science would have to be redrawn; for elements which could not be weighed and measured would then come within the sphere of scientific study. Even now we cannot say that scientists as a whole have accepted the principle that science must take the whole content of the intellectually knowable into its purview—though in fact it is a platitude that no one thing can be fully known unless everything else, everything whatsoever, is also to be studied. We must set the part against a background of the whole.

Such is indeed the conclusion to which science is steadily and inevitably moving. Its progress is most evident in biology. There the era of dissection was followed by that of "cages and mazes," when living specimens were submitted to dietetic tests and response experiments under laboratory conditions. From the existence and influence of vitamins to the functioning of the conditioned reflex, a range of problems in life and conduct was fruitfully investigated. If the theories derived from such researches were not always so universally valid as was asserted, the method led on to study under wider and less restrictive conditions. Indeed it is true to say that the modern biologist is genuinely concerned with life, and that his primary datum is no longer the solitary organism, dead or alive, but the organism in its whole normal environment. The best work is no longer static but vital, no longer restricted but inclusive; and the results are being extended to such studies as human ecology, the study of human life in relation to the whole of its environment.

A third change, more immediately relevant to religion, is still in its early stages. That it should be occurring at

all is, considering its subject, very remarkable. For teleology, the belief in purpose or design, has been for nearly a century dismissed with scorn and condemned with violence by the majority of scientists. Even those of us who appreciated the strength of the case for it could hardly expect to see its revival within many years. We might argue that the simultaneous occurrence of the many changes necessary for the successful emergence of novelty in the evolutionary process presents a problem for which orthodox Darwinism can offer no explanation; for in many cases the odds against the random appearance of any one change are immensely great. To assume that an interdependent group of such changes can appear simultaneously and by accident is a fantastic absurdity, as an analogy will make plain. It might be possible by throwing out a bag of letters a few million times to produce accidentally a paragraph of a book like this. But the hypothesis of random simultaneity involves the production in this manner not of a paragraph but of a whole volume at the same time. An author can write a book, but not by writing down odd letters by accident. To suppose that any complicated design, such as is displayed at every level of natural development, can be produced at random or without purposive control is as foolish as to suppose that a jet airplane can be produced by an accidental assemblage of stray bits and pieces.

Now a revolution is occurring. At various levels from that of the atom, of the organic molecule, and of the micro-organism to that of invertebrate and of vertebrate life, and in many types of behavior pattern, examples can be cited which challenge the possibility of randomness. Such evidence has been set out in a number of important books and addresses by scientists of high rank in their various departments; and it has been insisted that in the light of it we must admit the plain fact of design in the processes of nature. There must evidently be some element of purposive co-ordination, and in addi-

tion some means for securing that a result once achieved can be repeated and established. It may not be necessary to express this element in the analogy of the watchmaker and the watch; but in any case we must not ignore or reject it. Even Darwin himself, whose ideas on the subject were by his own admission hopelessly muddled, confessed that when he thought of complex structures like the human eye, he trembled for the survival of his own hypothesis.

These three changes, each important in itself, and in their cumulative effect producing a transformation which we shall examine in the next chapter, have had their influence increased by the sense of urgency due to the discovery of nuclear fission and its use in the atom bomb at Hiroshima and Nagasaki. Attempts have indeed been made to whitewash actions which were protested against by the very scientists who made them possible: and the strange doctrine that, though killing a single person is still a deadly sin, the massacre of a whole city is deemed necessary "on strategic grounds" is a legitimate element in warfare has been propounded by militant and patriotic Christians. But for most of us such special pleading has been too obviously false to outweigh human insight and biblical teaching. That national governments, dictators, and mobs should be able to bring humanity to its end is a position which no sensitive person can view with complacency; and his dismay is increased by the impotence of statesmen and churchmen to realize the situation or to find means to control it. Among ordinary folk it has certainly given a strong impulse to the search for deliverance, and, as a preliminary, to the attempt to arouse the careless and enlighten the ignorant as to the conditions which may yet save us.

chapter 5

The Significance of the Change

THE CHANGES, of which the most important have been described, are sufficient in themselves to create a new situation for the Christian. Obviously they offer opportunities for mutual understanding between science and religion at points which fifty years ago revealed a seemingly irreconcilable antagonism. But along with these changes have been developments both of thought and of life, partly fostered by them, partly parallel to them.

The first of these arises out of the widespread awareness of the disintegration of existing cultures, and the frustration of our need for world-unity in consequence of our lack of any coherent agreement as to what constitutes the good life for man. Plainly mankind has not any common ideal capable of controlling its egoisms, directing its policies, or unifying its interests. Scientific advance has upset many ancient systems of religion and morality without supplying any kind of adequate substitute for them. The pressure of population, stimulated by national pride and racial passions, has produced acute tension in all lands. The increase of human knowledge

and interests has made a high level of specialization inevitable, and this has made it hard for anyone to gain or maintain a balanced and fully equipped personality. As we have so far attained so little general experience of true community or shared leadership, there is little possibility of wise statesmanship or of a worthy distribution and employment of our resources. Just when we could, for the first time in the earth's history, establish a world-wide commonwealth, we are increasingly unable to save ourselves from using its instruments for mutual destruction.

There have in consequence been many efforts at all levels—in education, in domestic and civic life, in national and international affairs, and in the churches—to promote unity or at least to check the progress of disintegration. The World Council of Churches and the International Missionary Council, the United Nations and UNESCO, the efforts to break down the isolation of the various specialist societies and to promote mutual understanding and a sense of community, and especially perhaps the great amount of work directed to fostering a wider, more general, and more lifelong education—these give evidence of the attention being paid to the problem. Their intentions are excellent, even if their methods and achievements are usually disappointing.

In their relationship to religion, probably the most important of such movements are those which aim at breaking down the barriers imposed by the need for specialization. The fact that in these days men who would promote the extension of knowledge in any department have to devote to it a lifelong and intense concentration is the penalty that must be paid for the vast extension of human activities and possibilities. Even Darwin, nearly a century ago, had to confess that the penalty for his intensive researches was the gradual loss of his love for music, his appreciation of natural beauty, and his sense of mystery and of the reality of God; and since his time

the field of study has been immensely expanded and minutely subdivided. It is today commonly reported that the workers in one department of knowledge hardly understand the language, let alone the techniques, of another; and the composite books on subjects like "My religion" or "My views of the universe" reveal how childish and ignorant are the opinions on such subjects of many who are experts in their own particular line.

To meet this position is obviously a chief concern of all who are responsible for education. It is simply not true that a specialist must allow all his other interests to wither away, or that mankind will only reach its full destiny if it follows the ants and breeds its young for differentiation both of function and of form. To teach children how to learn, to encourage the widest possible range of appreciation, to prevent too early specialization, to develop appropriate and compensatory hobbies, and to build up a strong and integrative ideal are the objectives of all sound education. And on the whole, in spite of the cost and length of the process and of the pull of practical and financial demands upon young life, they are being faithfully served.

Specially interesting have been the developments at this level in many of the great universities. In them faculties have been linked together, cross-faculty courses have been introduced; times have been cleared for lectures in literary, artistic, historical, and religious studies, and staff meetings and student societies have co-operated to enlarge and co-ordinate the curriculum and to create opportunities for the pursuit of interests and hobbies outside it. The World Student Christian Federation has played a notable part in these efforts.

Such co-operation would have been impossible if there had not been a development in thought similar to that which we have been describing, but springing from a deeper and more significant source.

We have noticed that one of the effects of the material-

istic psychology of fifty years ago was to regard all man's basic and ineffable experiences, his moments of rapture and his sense of adoration, as merely the survival of the primitive and unintelligent consciousness; and to maintain that the sole value of this consciousness was to provide raw material that the mind could examine and test and fashion into definite concepts; that out of these concepts could then be built hypotheses for the erection of a great tower of formulated knowledge which should reach to heaven. Such a belief dismissed the religious and mystical literature of mankind as moonshine and illusion, and encouraged a crude and militant rationalism.

With the collapse of the materialistic interpretation of the universe and the changes which we have been considering, the whole concept of experience and its interpretation has been turned right side up. We are once again made aware that man's reach exceeds his grasp, that the basic characteristic which gives him his human status is his power to contemplate his universe as in some sense over against himself, to feel lonely and self-conscious in it, and to encounter in it experience of communion and of challenge. From such experience man has developed his art, his science, and his ethics, as he attempts to apprehend, to describe, and to placate the power that confronts him. Along this threefold road he has tried to attain means for appreciating, explaining, and managing his experience and of communicating it to others. To this road he can now return.

Such return became easy when scientists began to discover that the intellect was not, as some had supposed, the originator but only the interpreter of experience. This has become increasingly plain owing to the debates provoked by the performances of electronic calculating machines, and by the suggestion that man himself is only such a machine in a smaller and more effective form. It was clear that there was a real analogy between the achievements of the calculator, the "mechanical brain,"

be to us, must be approached with toleration and a desire to appreciate it. The study of the reasons which have led to the acceptance of characteristic symbols, and of the extent to which they are still adequate to express the outlook and promote the ethos of their religion, will have far-reaching value for us all. This should be a chief concern of what is often called "comparative religion."

Before we go on to consider the special opportunities presented by these changes in the climate of thought to a sacramental and incarnational religion like Christianity, we must look at an equally far-reaching change in the whole human environment, consequent upon the application of science to industry; and this affects both our exposition of the faith and our method of giving expression to it. Industrialism has in fact transformed the traditional way of life, not only in Europe and America, but even in the remotest parts of Asia and Africa. It has broken down the old village or tribal communities with their traditional and integrated society, and in doing so, it has created new temptations and new evils, as well as opened up larger horizons and more varied possibilities. The effects of this revolution have been different in the Western world and in the Eastern and Southern; but in both cases they demand a rethinking of Christian evangelistic and institutional objectives.

In the West, which has long been practical and individualistic, the change has forced men into collective activities highly standardized and leaving little room for freedom or particularity. The private person, who has until lately prided himself upon being "the master of his fate, the captain of his soul," finds himself caught up in a mass of his fellows, regimented by the obligations of their common task, and deprived of the liberty and the craftsmanship of the old-fashioned worker. From this corporate life he cannot contract out; he must share its faults and contribute to its virtues; his freedom often seems to be little more than freedom to commit suicide.

In the East and South the effect has been different. The old life of the community has been disintegrated; the individuals who composed it have been deprived of their traditions and often become helpless and frustrated; and when they form a new community, it tends to be modeled upon the familiar pattern, and this is no longer appropriate.

In neither case has the full Christian fellowship, which might replace and satisfy both the individualism of the West and the village society of Asia and Africa, been as yet very successfully presented. Indeed evangelism, which must rightly begin with an appeal to the individual, still clings far too rigidly to this one task; and this for men of all races can only lead to an other-worldly irrelevance or to frustration and disillusionment.

For the plain fact is that the solitary individual, in spite of his importance in his own eyes—and in certain types of Christian piety—has never been typical of mankind. Robinson Crusoe, one of the only known instances of complete solitariness, found the position intolerable; and the wise man who said that loneliness was tolerable only for a wild beast or a god was speaking truth. A religious appeal which narrows the issue down to a duet between God and me, a transaction between myself and Jesus, is always an oversimplification: my neighbor can never be left out; for “we are members one of another” (Ephesians 4:25), and the community to which we belong cannot be ignored. Unfortunately the concept of the church, now that it has lost its unity and ceased to have “all things in common” (Acts 2:44), no longer fills for most Christian communities the place of that which has been lost.

It is of course obvious that the solitary individual no longer exists, and that the measure of independence which any one of us possesses has shrunk and is rapidly shrinking. How far any social order, if it is to be effective, can preserve any remnant of the old individualism is at the moment open to grave doubt. How far we are justified in

trying to preserve it must be for the Christian at least an open question. But we cannot go on pretending that for every one of us it is still possible to make a full surrender of himself to God, and then to live in absolute honesty while he earns or enjoys his livelihood.

In the old days, indeed perhaps down to John Wesley's day, such a Christian challenge to the individual was not inappropriate to his situation. The economic system was still in some cases that of the self-supplying hamlet. Squire and parson were members of a community in which all the daily needs could be met by its own efforts. There are still a few estates, even in industrial countries, where all the crafts of life from the brick-kiln and the carpenter's shop and the forge to the spinning wheel and the loom, and the tanner's yard, or the butcher's or the baker's, are provided within the one boundary-fence. But they have long been anachronisms, and, short of a relapse into barbarism, will not reappear.

We were given a striking illustration of the change in our situation at the time when the great Conference on Christian Politics, Economics and Citizenship (1924) was disclosing to us the scale and complexity of our mutual interdependence. A World-Service Exhibition was planned, the chief feature of which was a display of all the processes and activities that accomplish for modern man the supply of his daily bread. The exhibits covered every field of human effort from the researches of chemists and geneticists to those of the inventors and machine-makers, from the transport services to the retail trader, from the pioneers exploring new corn lands to the laborers who plough and sow, harvest and grind and bake. Its message was plain. Every time we "break bread," we become as consumers responsible for conditions of employment or exploitation the world over: we contribute to the existence of social evils for which no single individual, be he pope or emperor, is solely responsible, and which no single individual can remedy or escape. We can ignore these evils

—and so be guilty of acquiescing in them; we can do our little best to keep sensitive and to arouse a deeper social awareness of them. But we cannot claim to be “absolutely honest,” while we accept and benefit by conditions that involve corporate evil. An evangelism which says, “That is not a spiritual matter; I can do nothing about it,” when challenged on political or social issues, is not dealing with fullness of life nor meeting the primary problems of our time.

The effect of the maintenance of this narrow and individualistic outlook is manifest. It holds out a prospect of release from sin to people who, if they believe it, nevertheless have to earn their living under conditions often intolerably sub-Christian. Either they become insensitive to these conditions, “making the best of both worlds,” living in a small group of their own and exposing themselves to an unanswerable charge of escapism; or they find themselves compelled to a compromise of their convictions and to the conscious acceptance of a dual standard, one for their religion and the other for the outside world.

Plainly any presentation of religion today must be on a double program. It must be primarily a call to recognize and adore, a call to communion with God and to penitence and forgiveness. But it must also be an appeal for a life not only of individual surrender but of corporate, universal, and world-wide service. Nothing human can be dismissed as irrelevant. “For their sake I consecrate myself” is the condition of all personal salvation; and we are called not only to be examples but to be servants in a society as large as the earth.

chapter 6

Christ in This Changed World

IF IT BE TRUE, as we have urged, that the modern outlook in this scientific age has recovered for us a sense of mystery and of the primary importance of man's encounter with the infinite, then it would seem equally true that, in the attempt to define and explain that mystery, our interpretation must be in terms of personal life and relationships. Anything lower, any explanation in terms of a world-soul or a life-force, even more so in terms of physics and chemistry or mechanism, would be an idolatry. We should be trying to interpret the whole by the analogy of one of the parts; we should be explaining the original and creative in terms of the subordinate and derivative. If we carry through our proposed comparison of the symbols of the various religions, or if we ask ourselves how we can interpret our experience in relation to our individual and corporate need, we shall be compelled to admit that, for us human beings, the only exposition of reality that speaks to our condition will be the perfect Son of man. Only in terms of the highest and holiest thing within our experience, human personality at its best, can be found the image of the invisible God (Colossians 1:15).

To some this will seem to be a return to the ancient, and in early times almost universal, practice of deifying the hero. Some will make the objection that the acknowledgment of God in Christ is in line with the bestowal of divine status upon Hercules or Julius Caesar, upon Krishna or the Pharaohs, or upon the Buddha, and even that many of the incidents recorded in the Gospels or by tradition have been derived from stories of other divinities. If so, it is well to remember that the confession of Jesus as Son of God came from the last people on earth to make such a claim for any man, and at the time in their history when to do so was blasphemy and deadly sin. It is significant of the compelling impact of Jesus upon his contemporaries that, at the very time when the liberal Jew Philo was risking his life on his embassy to the emperor Caligula in order to plead that no Jew should be compelled to offer incense to the image of the emperor, Saul of Tarsus, that other great liberal Jew, was risking his life as St. Paul the Apostle by preaching Jesus as the Christ, the Savior, the image of God.

If we then take up the challenge which Jesus threw down to his disciples at the close of his work in Galilee at Caesarea Philippi, and repeated before the leaders of Jewry in Jerusalem on the last day of his public ministry, we must work out our own answer to the question "What do you think of the Christ?" (Matthew 22:42; cf. Mark 8:27). It was a question made inevitable from the first appearance of Jesus in the synagogue at Capernaum, when his hearers murmured, "What is this? A new teaching! With authority he commands even the unclean spirits, and they obey him" (Mark 1:27). It is a question which underlies much of the New Testament, and to which every one of us should be constantly anxious to return.

In answering it, we must not be glib or conventional. It is easy enough to say "Lord, Lord," and to let the confession commit us to a wholly false concept of him—or to nothing at all. The character of Jesus has in fact been so

overlaid with conventional tributes, so twisted into conformity with pre-Christian standards, so confused by strange and unchristian concepts of God, that it is an obligation upon us all to check and test and verify as fearlessly and as humbly as we can our ideas and notions and memories, so that we may be constantly discovering fresh wonders in him. We must try to do what his contemporaries did and recorded, accompanying with him and telling how gradually their opinion of him grew. For he taught them as one who had authority, and not as the scribes (Mark 1:22); "A great prophet has arisen among us!" (Luke 7:16). "He has done all things well" (Mark 7:37); "You are the Christ" (Mark 8:29). And his own reply to John the Baptist summarizes his achievement: "The blind receive their sight, the lame walk, lepers are cleansed, and the deaf hear, the dead are raised up, the poor have good news preached to them" (Luke 7:22). We may take those words literally, if we like; they represent spiritual facts as truly: He came and men had life and had it abundantly (John 10:10).

So in the early period of the ministry. Later on, after St. Peter's confession, Jesus begins to fashion in his hearers new and deeper insights into the true character of greatness as service, the true means of grace as suffering, the true meaning of discipleship as cross-bearing. And what he teaches, he fulfills. Going up to Jerusalem, he presents the challenge of himself and awaits the verdict of his people. Plainly he could have fought out the issue; plainly he could have evaded it. He refused to fight or to flee. He chose the cross.

This took St. Peter and the rest by surprise; for their hopes had been set upon thrones and crowns and the triumph of the king. Because their loyalty was divided by ambition and fear, they betrayed and forsook their Master; and saw their hopes shattered and their self-esteem turned into a bitter and inexcusable abasement. They too had to suffer a sort of crucifixion, in order to attain to forgive-

ness, commissioning, and newness of life. Their experience convinced them of the unique authority and divine status of their Lord, and so prepared them to be merged and welded into the organic and creative community which should be his representative and instrument. Henceforward they and the new converts who joined them searched the whole vocabulary of religion to find language adequate to the saving power of Jesus—the Christ (now in a less restricted meaning), i.e., God's anointed one, not only in the sense of the Messiah whom the Jews had been expecting; the last Adam; the man from heaven; the Lord; the image of God; God's mystery (open secret); the only-begotten Son; the Word (Logos); Lord and God—by these and many other terms they strove to define him. And the process was carried forward into the fourth and fifth centuries. We call it Christology.

It was a necessary process: the answer must be given to the question posed by Jesus himself. While it was inspired by a living experience of communion with him and could therefore be expressed in personal terms, while those who pursued it were "in Christ" (to quote St. Paul's most familiar and most revealing phrase) and could speak what they knew, the quest was an inspiration and a bond of union. When it became a matter of establishing orthodoxy, it became dangerous; for orthodoxy easily becomes exclusive, so that the search is now for phrases which will not only safeguard the truth but condemn those who hold the faith otherwise. From that point onwards the story ceases to be edifying; and the effect of the quarrels about the definition of the doctrine is to rend the unity of Christendom, destroy the glory of the Eastern Churches, open the way for Islam and establish the papacy as the center of unity in the West.

We can see the transforming power of the impact of Jesus upon his disciples by their attempts to define him; we can estimate its effect by the change wrought in them and manifested by their achievements. Its character, the

precise quality in him which had such supernatural influence, is disclosed by the records, and, though at first sight paradoxical, it reproduces an antithesis familiar and basic in all religious experience. As we study the stories of his words and deeds, two elements stand out—first his patience, gentleness, and compassion; and then his demands, his austerity and condemnation of evil. The contrast between the two is sometimes so startling as to seem impossible. How could he who said “Whoever says [to his brother] ‘You fool!’ shall be liable to the hell of fire” (Matthew 5:22) say also “You traverse sea and land to make a single proselyte, and when he becomes a proselyte, you make him twice as much a child of hell as yourselves” (Matthew 23:15)? Can both accounts be valid? Can the same lips have uttered two sayings so contradictory?

It may be that the Evangelist has overemphasized some of the denunciations of the Pharisees; but students who are tempted to “criticize with a penknife” do well to remember that this precise contrast is found in our own encounter with God, which first exalts and enraptures, and then challenges and condemns; and that in nature also this same combination of exquisite sensitiveness and ruthless severity is familiar and inescapable. If a personal confession may be permitted, it seems, to me at least, clear that in spite of the difficulty of holding the two together, the portrait of Jesus would lose much of its grandeur if either the softness or the hardness were modified.

Indeed a somewhat similar paradox runs through the whole character of Jesus. Anyone reading a number of the recent “lives of Jesus” will realize how wide is the variety of his appeal, and how easily each writer finds in the Master his own interpretation, the picture of his own ideal. Yet this astonishing many-sidedness, though the portraits may in consequence be poor and inadequate, does not in fact give any impression of incoherence or inconsistency. The resultant character is too big for us to comprehend in its fullness; what we see gives us the im-

pression of an ultimate unity too massive for us to grasp and measure. Here again we find the same coexistence of multiplicity and unity in nature: perhaps no other being except God can be so diversely described; perhaps no other gives such an impression of realized though transcendent perfection.

If we look at Jesus' influence in greater detail, we cannot but notice, first, that in his teaching he draws not upon the abnormal and startling but upon the familiar and universal. He takes the simplest events—the sowing of fields and the growth of plants, the baking of bread and the catching of fish—as his themes; and bids his hearers discover in them the nature and quality of the divine. Manifestly his view of nature is that it is sacramental through and through, “an outward and visible sign of an inward and spiritual grace”—a view wholly congruous with the doctrine of the incarnation of God in him.

We note secondly that Jesus does not teach about God in the ordinary manner of the theological lecturer; he does not give proofs of God's existence or definitions of his attributes. Rather by the immediacy of his own awareness of God, he infects his hearers with a sense of God's reality and presence; he teaches them to address God as “our Father,” and bids us aspire to His perfection. Thus he quickens in us sensitiveness not only to the beauty and worth of the creation but also to the love and care of the Creator. He awakens us to fuller life, and so to the eternal life which is the knowledge of God.

Along with this imparting and fostering of life there is also, as we have seen, the inevitable challenge of such an experience. Like Isaiah in the year of king Uzziah's death (Isaiah 6:1–8), we see the Lord and are convicted of our sin: “I saw . . . and I said, ‘Woe is me! I am a man of unclean lips.’” The disciples of Jesus saw, and were ashamed; and so, like the prophet, could be purged by “a burning coal from the altar,” by the furnace of suffering, and commissioned and enabled to reply, “Here I am!

Send me." To anyone who has lived with fullness, such a rhythm—illumination, abasement, cleansing, service—is familiar. It can be expressed in the three great sayings about life in St. John (10:10; 12:25; 17:3)—life abundant, life sacrificed, life eternal. It culminates in the attainment of the community in which each individual finds his freedom and fulfillment, the community whose inspiration and nexus is the Spirit of God, the community which lives "in Christ" and lives eternally.

Before we pass on to consider the consequences of the acknowledgment of God in Christ—the new concept of God as love and the new relationship of man with man which the gracious gift of Christ makes possible—we must, if we are to deal faithfully with the world of science, pause and consider the objections that scientists are bound to raise. The church has from early times laid stress, in establishing the claim of Christ, on his miracles; and, though Jesus himself forbade the proclaiming abroad of his mighty works and plainly emphasized the element of faith required in the recipients of them, nevertheless the Gospels are full of records not only of works of healing but of works of power.

To treat the subject adequately would need a volume. For our present purpose that would be perhaps unnecessary. For the changed temper and outlook of scientists has removed the problem of miracles from the central place which it occupied in the nineteenth century. It is a mistake to say that there is now no problem: many honest minds find it hard to accept literally the miracle of the feeding of the five thousand or of the destruction of the Gadarene swine; and the miracle at Cana or the raising of Lazarus is not only difficult but bound up with the whole question of the character and historical reliability of the Fourth Gospel. There is a genuine conviction that each one of these records must be examined in detail and without prejudice.

But four things may be briefly said.

First, there is no difficulty today in accepting, indeed in affirming, the power of Jesus to heal, and the importance of his ministry to the body no less than to the soul. He could and can make men "every whit whole" (John 7:23, A.V.). That he does so chiefly by evoking faith and enabling new life, along lines with which we are now becoming familiar, is a conclusion that few would contest. He does not break the laws of nature (whatever that may mean); he discloses conditions which we are not equally able to fulfill, but which do not contradict our own experience or expectations.

Secondly, the so-called nature-miracles, which do appear to contradict our ideas, do for that reason cause far greater difficulty to honest inquirers. Few scientists nowadays would affirm that the direct operation of mental and spiritual power upon matter was impossible: we are no longer so ready to say, "This cannot happen." But we have a vastly fuller knowledge of nature than was available in the first century; we no longer share the beliefs then universally held in magic and demons; and we know that we and all men are liable to see what we expect to see, and to describe and interpret it in terms of our own outlook and notions. In several of the records—the raising of Jairus' daughter, the feeding of the five thousand, and the walking on the water, for example—a careful study and comparison of the various accounts suggests that there are elements in the story which might lead a modern man to feel that if he had been present, he would have given a different account of what happened.

Thirdly, it is important in view of this last consideration to urge that it is a serious error to assume, as some critics of the Gospels do, that because a document contains miraculous details, therefore it is wholly legendary and of no historical value. It was as natural to a first-century writer to explain a disease or any unexpected event in terms of possession by demons as it is for a modern writer to do so in terms of bacteriology or atomic energy.

The fact that a century ago a lot of use was made of mesmerism, or fifty years later of the luminiferous ether, does not justify us in regarding as fiction the records of cases, or of experiments then performed. To dismiss the Gospels as falsified because they were written in the language and ideas of the time is unreasonable.

Fourthly, the old arguments from miracles, "only a God could do such works"; "only He who made the laws of nature can break them," are not those which a modern champion of the faith would employ. They are, as we shall see, hard to reconcile with the Christian concept of deity. Certainly not all the facts available to the modern student of faith-healing are such as necessarily guarantee the divine, or even the religious or moral, status of the healer. That which calls out faith is generally that which gives the patient a sense of God and of trust and health. But on the other side, the effects of the autosuggestion of Dr. Coué and the strange healings and killings of the African witch doctor cannot be denied and must give us pause. In the case of our Lord it is not so much the occurrence of particular supernatural events which vindicates his divinity as the miracle of his character and teaching. The manner of his birth, for example, remains a mystery, and many who desire to follow Jesus find it hard to believe in his birth of a virgin. But the quality of him who was born remains in the full sense miraculous: it evokes our adoration; it satisfies and surpasses what we can elsewhere learn of God; it constrains us to surrender and inspires us for service. So too with the resurrection; whatever we think of the details—and some of them are admittedly obscure—the evidence for the continuing life and influence of Jesus and of our ability to realize his presence can be collected from people of all dates and places. He lives in a sense paralleled by no other; and the evidence of his risen life transformed his followers and altered the whole course of history: it is attested at first hand by many of us today.

Yet, when all this has been said in defense of the mir-

acles, it remains that the impression left on our minds by the Christ in the New Testament is not that of the wonder-working divine invader whom men pictured in the fifth century, any more than it is the judge and avenger of the Day of Doom in whom men believed in the Middle Ages. Jesus himself shows his attitude toward nature most plainly in the earliest record of his public preaching, the series of three parables in the fourth chapter of St. Mark. The first of these is plainly an illustration of his own ministerial work: he is the Sower, and his first task is to scatter the seed of the divine Word broadcast. Some will fall by the wayside, among thorns or on stones, and will be lost; some into good soil where fruit, much fruit, will result. It is a true image of the first phase of his life's task: with a lavish versatility and an infinite patience he pours out before his hearers his wealth of aphorism and poem, parable and prayer; and he that has ears to hear will catch the message. The second corrects what might thus be misunderstood: the soil and stones are not an adequate image of man, the free and responsible receiver of the Word. Its light must not only be kindled, but tended and set where its radiance can be seen and enjoyed; and for this task man, each of us, carries a proper responsibility. God will not treat his children as robots: there is in all his dealings with them an element of mutuality. He gives and we receive—or refuse. Jesus will not, cannot, compel his hearers; if they are deaf, he will try again. But they must carry the judgment of having shut their ears. The third, the shortest of all his great parables and one over which commentators have taken little trouble, sums up the series in a message of supreme significance. Man has responsibility; but nonetheless, whether he exercises it or no, whether he sleeps or wakes, the earth is fruitful and the seed grows. That is the very nature of things; for God's world is so constituted. Man cannot in the last resort defeat the very condition of his universe. "The earth produces of itself": we can rely upon our environment.

It is a lesson similar to that contained in the other earliest source of our knowledge of Jesus' teaching. In the Sermon on the Mount, illustrating the perfection of the Father's love which knows no favorites and cares for all his children, he appeals to what most of us find so terrifying, the awful impartiality of nature. God who loves us does not temper the wind to the shorn lamb—he does not make things specially easy for the weak—if he did, the world would be a padded cell, a bedlam, not a home. Rather he makes his sun to shine upon all alike—and all can feel its warmth.

chapter 7

The Grace of Christ

THE POWER of Christ to "save" the individual is witnessed by the Gospels, expounded as "a scheme of salvation" by St. Paul, and attested by multitudes of Christians from age to age. But, as we have seen, what was sufficient for men of an earlier day may not be sufficient for us. We are constrained today to see the individual not in the homely world, as men knew it in the first century, flat like a plate, little larger than the Mediterranean basin, with ocean around it and the small dome of the heavens above; but against a background measurable in "light-years" and by geological time, the inhabitants of a small planet circling a not very imposing star. In such a setting man seems to have lost something of his importance.

We shall consider this problem of the scale of the universe later: it presents a real difficulty for men who till lately thought themselves the lords of creation. But now we are concerned with the need to relate Christ to something wider than the need of the individual for God, to show cause for our belief that his revelation is our central point for the understanding of the meaning of history and of nature. Is he just important for his own time, the culmination of the Old Testament religion and the initiator

of the Christian era? Is he just one element, albeit an outstanding one, in the realm of nature, or does he illuminate and in some sense explain that whole realm of nature?

The first of these questions has long been asked—though in a cruder form. Men have wondered whether a Jew of nearly two thousand years ago, speaking in the language and style of a bygone age, and to men wholly lacking in our knowledge, can have anything to say to us of the twentieth century. Even if we can accept Christ's unique value to his own time and his revolutionary influence upon his own world, is there any good reason to suppose that he rises beyond it or that his power to meet human need still survives? And, if not, then surely he belongs to the past, not to the present or the future.

Now this is a matter which, for a complete answer, would require a record in some detail of all the acts of the risen Christ century by century: it would be long to tell, difficult to estimate, and perhaps even then indecisive. For the testimony would not be all on one side. As with liberty, so with Christ; crimes have been committed in his name. Fortunately a simpler and more effective test is available, in a matter central to our inquiry.

In regard to most doctrines, the church formulated its belief long ago in a creed and has never revised it; but when it has tried to explain the character of the saving work of Christ (the doctrine of the Atonement), the result has never been standardized or made unalterable. So we get in the various types of explanation a clear and valuable proof of the response of Christendom to Christ at various stages of its history. And these show us very effectively the estimate which his followers at any period formed of him. It is remarkable to find that each one of these doctrines of atonement uses, in order to express its interpretation of his work, the language of the deepest need felt by the men of the time in which it was worked out. It is as if Christians realized that only at the level of

their own most profound aspiration could they find words to describe what Christ had done for them.

In the earliest days the first reaction to Christ's atonement was the sense of victory. In him men oppressed and defeated had triumphed; they had conquered in his sign, for he had overcome the world. Their language was not that of doctrine but of experience, an affirmation not an exposition.

A century or so later, when it became necessary to explain and to argue, the master-word was redemption: Christ, as St. Mark had recorded, gave his life "a ransom for many" (Mark 10:45), and the price paid to set the slave free suggested a metaphor which spoke to their condition. Many, perhaps most, of the Christians of that period were slaves or freedmen; and slavery under the Roman Empire was a far worse and more degrading thing than it had been in Greece or among the Jews. Those who had been the victims of the lust and cruelty of hard and unfeeling masters must have dreamed of the day of liberation with a passion of longing. Jesus had achieved their release in the very depths of their being: he had paid the price and ransomed them, and henceforward they were free. It was not an easy metaphor to work out in detail. Who demanded and received the price was not a question that could be satisfactorily answered. But if the imagery was inexact, at least the experience was vivid and significant.

When after the dark age (A.D. 500–1000) the new medieval and feudal period began, Archbishop Anselm came from his training in law and theology at Pavia in Italy to the troubled England of King William Rufus (1087–1100). The country was in misery—lawless, disorganized, a prey to civil strife. Out of the anarchy and oppression a new interpretation of Christ's redeeming work was fashioned in terms of the deeply felt need for justice, peace, and a settled order. Christ had discharged the obligation which all mankind owed to its divine over-

lord. He had given satisfaction to God for us. So we had been received back as tenants of God, rendering to him our homage, secured by him from hurt and wrong. The theory grew, like that of ransom, out of a bitterly felt need. Here also the details were difficult to interpret; but at least it represented not only the individual's deliverance but the admission of mankind into a new and corporate relationship with God—even if the concept of the overlord was hardly Christian and the whole transaction too legal in its scheme and idea.

The third great metaphor came with the Reformation and centered in the simpler idea of substitution. The Reformers were engaging on a great but lonely adventure; their predecessors, like John Huss or the Lollards, had been cruelly treated, and they if they failed could expect no mercy. Moreover, for the individual to stand out against an institution so majestic, so powerful, and so revered as the Roman Catholic Church could not but involve him in a sense not only of fear but even of guilt. Such men drew their message and their fortitude from their passionate loyalty to Christ; they had found him in the Gospels and in the experience and letters of St. Paul, and in his name they made their protest. So arose their doctrine of atonement. He had done for them what they could never do for themselves. By his death they were freed from sin; by his living presence they were sustained and inspired. He was their substitute, their sin-bearer and Savior. "He did this for me: he can do this in me." Faith alone was required; then all else would be given. It was a return to the individual and to the experience of the twice-born, especially to St. Paul, rather than to the full range and variety of New Testament teaching. And it had its dark and difficult side over problems of selection and election, over the fate of the unbeliever, and on occasion over the self-righteousness of the "saints." But, in its stress upon the sufficiency and intimacy of the work of Christ for each one of us, it expressed and promoted the revolution of the time.

It is plain that these attempts to give a vital and contemporary exposition of the work of Christ testify not only to his continuing influence, but to his relevance to periods and people vastly different from those to whom he first came. His universality could hardly be better attested; and though the accounts of his work and the consequent appreciation of his quality differ widely, there is in spite of these differences a definite and large measure of similarity. Of each of the accounts we can say, "This is of Christ": the features of his work that are emphasized, hardly less than those which are obscured, may make the resulting picture exaggerated or incomplete; nevertheless it is of him and reproduces the essential quality of his character.

A similar result would follow, as we have seen, if we were to examine and compare the very numerous interpretations of Christ which have appeared in recent times. Both the paintings and the "lives" differ—and within limits differ quite widely. But when they are sincere, they do not fail to disclose some insight into his authentic self, some insight which is not a mere projection of the artist's or author's own ideal, but bears on it, if we examine it, the marks of the Christ.

If we inquire whether there is yet any doctrine of atonement to correspond to the troubles and expansions of our age, the question is less easy to answer. We can see very clearly the defects of earlier theories; we can indicate certain elements which any modern attempt must obviously include; but we still wait for the theologian who will give us a doctrine adequate to our modern individual and corporate need and to our new knowledge not only of nature and the physical universe but of history and psychology. It is probably the upheavals caused by the last named, especially in the fields of philosophy and theology, that compel us to wait for our new understanding of redemption in Christ, till a more settled general outlook can be attained.

Meanwhile there are certain indications which suggest

that the next attempt will be in terms of unity and of the opening chapters of the Epistle to the Ephesians. The need and, for the first time in history, the possibility of a worldwide union of mankind has become obvious; and we are all searching for the integrative ideal which can promote and express that union. Obviously the concept itself is nowhere more finely expressed than in Ephesians 4, the great passage which F. D. Maurice cited in drawing up the statement which was the basis of the first Co-operative Conference, and which has inspired our best efforts after an organic society. In Ephesians 1:9, 10, we are told that God's express purpose in his creation was to unite (or consummate) all things in Christ. To see Christ as the climax and illuminator of the universe, the archetype and the goal of the life of man, the Alpha and Omega of the creation—that might be an interpretation of atonement which would do full justice to its primary meaning and meet the deepest need of our very critically placed generation. To do so would be an incentive to the task so urgently awaiting the Christian of today, the task of seeing life, this vast universe and the whole evolutionary process, in the light of the incarnation.

Such a consideration leads on directly to the second of our two questions. Does Christ merely belong to creation as a part of it, or does he also illuminate and explain it?

Obviously it is true that he belongs to it. For as Christ, he is the God-man and his humanity is ours also. It is not for us to enter into the problems of Christology. But however we define the relation of Godhead and manhood in Christ, it is clear that his own name for himself, Son of man, the whole testimony of the Scriptures, and the whole mind of the church saw him as sharing to the full our manhood, as tempted in all things (Hebrews 4:15), as made perfect by suffering (Hebrews 2:10), and as one with us in his resurrection and victory (Romans 6:3-10).

Obviously also he is nowhere and never just a creature. As we trace the parallelism between his life and the se-

quences of nature, it becomes evident that he represents and typifies and discloses the reality and meaning of them. This is, if it be true, perhaps the strongest verification of the claim that he is "the image of the invisible God." Its truth, therefore, demands examination.

It is perhaps permissible for one who began the study of the person of Christ and of biology and genetics at the same time, and has pursued the twofold interest ever since, to state that very soon he discovered that the sort of problems which arose in the one field were similar to those confronting him in the other. Problems of life and its survival, of suffering and its significance, of freedom and its meaning and limits, of relation to environment and its maintenance, of growth and perfection, of error and frustration, these were common to both subjects of study. Very soon it became natural to refer the questions arising in one connection to parallel issues in the other, and so to discover how each illuminated and was illuminated by the other. Gradually the conviction grew that this was not accidental, that the quality of created nature and of the Christ had not only much in common but often a real identity.

This has been argued by theologians concerned with the sacraments, who have on occasion claimed that there are for us two perfect sacraments by which the divine is symbolized and conveyed to us, one the order of nature and the other the person of Christ. No one who has studied them both will suggest that their importance is comparable. In nature we see "in a mirror dimly"; in Christ we see "face to face" (1 Corinthians 13:12): but the picture is similar in both cases. So at least some of us have come to believe. "God is seen God" in both alike. We shall examine the significance of this conclusion in the next chapter.

Meanwhile it is well to remember that a very similar conclusion is supported by one of the most notable of St. Paul's theological findings. When he had set out his

scheme of salvation in the great Epistle to the Romans (1—8:17) and demonstrated by a searching and brilliant analysis how God in Christ deals with the sinner, he turns at the conclusion of his argument to a wider issue. It is as if he said to himself, "Does this exposition, based as it is on the examination of God's way with the individual, give us any answer to the riddle of the universe? Does this doctrine of salvation yield to us also a doctrine of God and the world?" So he sets himself to examine the created world in its suffering and its aspiration, its efforts and its victory, and in the light of his Christian faith he produces a fourfold answer (Romans 8:18—39).

First it is clear that creation is not complete: it is frustrated, and not through any decision of its own but by God's explicit decree; it is frustrated, in agony. Secondly, this incompleteness and pain is a sort of pregnancy. The creation groans and travails waiting for deliverance, for the event that shall redeem it, for the manifestation of the family of God. We now have the foretaste of this redemption and can live in hope; but the end is not yet. Thirdly, we must not imagine that our agony is a sort of drama played out under the eye of a remote Creator; on the contrary, in this process God's Spirit is involved, coming in alongside of us with groanings that cannot be put into words, but sharing in our agony and enabling our efforts. In our struggle we are not alone nor comfortless. Fourthly and therefore, because God is with us, he makes everything work together for good to them that love him. Even here and now, for such the end is sure. And whenever the end may be destined to come, here and now nothing can separate us from God's love in Christ Jesus.

That would seem to be an account of creation which a scientist could accept as congruous with his own insight into evolution. It is an account plainly Christ-centered, disclosing in the world a meaning which recalls from time to time the actual utterances of the Gospels—"My Father is working still, and I am working" (John 5:17); "In the

world you have tribulation" (John 16:33); "Seek first his kingdom and his righteousness, and all these things shall be yours as well" (Matthew 6:33); "He will give you another Counselor—even the Spirit of truth" (John 14:16–17); "Be of good cheer, I have overcome the world" (John 16:33). But it is also an account that sees creation not as an act but as a process, all of a piece, one and indivisible: in it God's purpose is to bring to full realization a community which shall exercise its "glorious liberty" (Romans 8:21) in the complete attainment of that life which is now present only in occasional and anticipatory moments—"the first fruits of the Spirit" (Romans 8:23). Such liberty is obviously what St. Augustine defined as "the blessed necessity of doing no sin"; it is deliverance from the enslavement of evil habits and a perverted imagination, from inherited taint and the effects of our own negligence and ignorance, pride and rebellion. Only a world in which the creature has from the first possessed a measure of self-determination is capable of developing such liberty; and the inevitable cost of it is the creature's liability to make mistakes and the monstrous evils which thus accumulate and find expression. God overcomes these evils not by arbitrary acts of interference (to do so would violate his own nature and purpose), nor by manipulating the constitution of his world (altering "the rules of the game," so to speak), but by the redemptive suffering displayed on Calvary and manifested by his Spirit: he is our Father; and as the early Greek Christians taught, his world is a school and a home.

chapter 8

The Love of God

IF WE ARE RIGHT in acclaiming Christ as the image of God and setting out the arguments that he is like the Father, then we are necessarily committed to the correlated belief that God is also like Christ. This, as we have seen, was clearly recognized by St. Paul whose most familiar phrase declares that the gracious gift of Christ guarantees the love of God and makes possible the fellowship of the Holy Spirit (2 Corinthians 13:14). This declaration, however, has never been so fully accepted by the church as it has been freely repeated. This is a matter of great importance and very relevant to our theme; and it is not too much to say that Christendom for long periods of its history has contentedly accepted and acted upon ideas of God inconsistent with the revelation given by Christ, and has signally failed to maintain or to recover the Pentecostal experience of the Holy Spirit.

To the Apostles and even to St. Paul it was not easy to re-examine traditional ideas of God in the light of the teaching and example of Jesus. We can see the difficulty plainly if we look at St. Paul's preaching during his first

journey to Europe. In Thessalonica, as we learn both from Acts 17:7 and from his two Epistles, he preached Christ principally as king, stressing his speedy second coming and the miracles that would accompany it. In Athens on the Areopagus he spoke as a philosopher, quoting the Greek poet Aratus and expounding, in terms of the divine indwelling, the unknown God (Acts 17:22-31). In neither case was he fully successful: in the first he aroused the excitement, the calming of which was one of the chief purposes of his two letters to the Thessalonians; in the second he was met with laughter and scorn. He went on to Corinth humbled and resolved "to know nothing except Jesus Christ and him crucified" (1 Corinthians 2:2), and in that faith achieved his most astonishing results. He summed up his discovery in the sentences which declare that, whereas the Jews are always looking for miracle and a God of power, and the Greeks are obsessed with wisdom and a philosopher God, he is himself concerned to proclaim God in terms of a man on a cross; and that, though this is a scandal to the Jews and folly to the Greeks, it is in fact the only true power and wisdom (1 Corinthians 1:22-24). Thenceforth he set himself to get rid of the ideas of God the Omnipotent Ruler and God the Engineer, and to stress only and always God as "our Father." That he could write the hymn of love to the inhabitants of a city notorious for its sexual profligacy is proof of the measure of his achievement.

St. Paul's insistence that we must rethink our most familiar ideas of God is of singular importance for the theme of our present inquiry. It is not too much to say that it was because the church clung to its pictures of God as ruler and as architect of the universe that it failed so signally to commend its belief to a scientifically minded generation. If we regard God in these ways, there seems to be no answer at all to the problem that perplexed most of the Old Testament writers and is the theme of its greatest drama, the Book of Job. If God is both able and

willing to overcome and eliminate evil, why does he not do so? If he is the Almighty, the Lord of Hosts, then he must be able; if he is the supreme mathematician and engineer, then he must be willing. But in fact the world is full of sin and shame, of imperfections and errors. How can we believe in a God who is worthy of the name and of our adoration, in face of the actual condition of the world and the actual histories of men?

We know how prophets and psalmists, living among the tragic calamities of the Hebrew people, wrestled with the problem. God had created the world, and therefore it was all very good; but it wasn't. God ruled over the heathen and protected his own people; but he didn't. And though no doubt he sent plagues to remind or punish, and enemies to test his people's loyalty and courage, yet it was hard to maintain that the ungodly came to a bad end or that the righteous were never forsaken. On the presuppositions of Hebrew religion there was really no answer except Job's "though he slay me, yet will I trust in him" (13:15, A.V.), and that is a confession of faith, not an argument.

Even when Satan, who in Job is thought of as *the accuser* of men before God, comes to be thought of as the prince of the powers of evil, the problem is not solved, or even made easier to understand; for, if the Devil is God's equal, then God is vindicated at the expense of being dethroned; and if the Devil is a subordinate, then why is he not overcome and cast out? Only with the Second Isaiah and the Suffering Servant (Isaiah 53) is light thrown upon the dilemma; only in Christ crucified is it solved.

What then is the answer? The analogies of the Supreme Ruler and the Engineer must be abandoned: they have been superseded and replaced. Instead we must accept and follow consistently the teaching of Jesus and his example; and our thought about God must be in the categories of parenthood and education. We must accept St. John's definition, "God is love," the love which neither exploits

nor sentimentalizes, the love to which power and wisdom are always subordinate.

It is, as we have already seen, possible on this showing to make sense of the world of nature and history. We can at least reject the dualism which sets a power of evil over against God and adopts from Zoroastrianism the belief that the world is a battlefield between equal armies, in which nature has been conquered and totally corrupted by the Devil and God is temporarily driven out. We can also reject the age-old but basically sub-Christian analogy of the watchmaker and the watch, and all those ingenious but unsound arguments by which the defects or errors in the working of the machine were ignored, as it was insisted that, as God had designed it, the whole mechanism must be in all respects and automatically perfect. The world is neither the ideal welfare-state with a benevolent despot in charge, nor is it the ideal factory turning out complicated calculating machines and a hundred other admirably designed robots. Those two analogies have played so large a part in Christian apologetics and preaching that it is hard for us to get them out of our minds. But as a true picture of God and of his world, they simply will not do.

What then is to be put in their place? We have already indicated that Newton did a great work for religion, in helping to replace the old chaotic world by the concept of an ordered cosmos, and so providing a reliable frame of reference for our understanding and control of our environment. We have seen that Darwin did the same by compelling us to realize that the world was the scene of a continuous and intelligible evolution through which fuller life, a larger and freer adaptation of the organism to its environment, and a richer sensitiveness and truer social order were progressively but not in any sense automatically attained. It is a judgment upon the church's failure to maintain its first status as the inspirer and colleague of the sciences, and a proof of the extent to which it had

fallen away from a truly sacramental and incarnational theology, that it should have been put into the position of the chief opponent of the theory of evolution. We do not suggest that churchmen should adopt without scrutiny the latest hypotheses of the scientists, or that Darwinism, especially as expounded by Huxley, was not open to criticism. But at least here was a completely honest attempt to explain the creative process in a way which fitted the known facts, and moreover an attempt in close accord with the earliest and perhaps most adequate form of Christian theology and with the belief in an ever-loving, ever-working God.

This issue is still so controversial and so important in the present phase of the relationship of science to religion that it should be examined in fuller detail.

We have already in our brief survey of the history of the theory stated the chief points in which Darwin's work is defective. The process of evolution is certainly far more complex than Darwin and his followers supposed. The great doctrine of natural selection cannot be equated, as Huxley thought, with a "kill or be killed" program. It is in fact far more truly seen as an attainment of more abundant life. Elements of partnership (symbiosis) and of parental and social co-operation, with an increasing sensitiveness and flexibility of response, a widening environment and the development of fuller and more adjustable means of contact and control, are constantly emerging. The appreciation of beauty, the sense of order—even of number, the dawning of a moral sense or at least of the observance of a behavior-pattern conducive to the welfare of family and flock, begin to appear much earlier than has often been supposed. The ability to learn by trial and error and to communicate information appears to be a characteristic not only of the vertebrates but of life at all its levels. There is nothing automatic or inevitable in the progress that is accomplished. "But," as Galileo is said to have murmured, "nevertheless it moves."

Moreover, as we consider the character of the process it is clear that although it is a record of struggle, yet the future does not belong to those creatures which prey upon others, or to those which try only to keep themselves safe. We may hesitate to claim that in this record of slayers and slain there is a sacrificial element, but the greatest of all observers, J. H. Fabre, the French skeptic who disclosed to us the horrifying stories of insect parasites and cannibals, confessed that nature seemed to him obedient to what he could only call a law of sacrifice. Survival-value, if by that we mean the enabling of advance, belongs to those who live dangerously and develop sensitiveness and achieve methods of adaptation and co-operation, to those who achieve more acute sense-perceptions and quickened responses, to the social rather than to the solitary.

If there is, as scientists are claiming, an element of co-ordination and design operative at every level, we shall not think of this in terms of the old teleology, as if a divine engineer was constantly adjusting the form of his machines to their functions; we shall see it as an element inherent in the very stuff of the world and conditioning the interplay of positive and negative, attraction and repulsion, the whole and its parts.

Since the process of nature and history is one and continuous, we must needs abandon the traditional and still not wholly discarded attempt to find God at work only in the gaps in the process. A Christian who thinks that a living God means a God who intervenes from time to time, and clings to the idea that at certain specific points in an otherwise automatic procedure God took direct action, naturally hesitates to recognize that such a belief does not fit in well with the doctrines of the divine omnipresence and unceasing love, and has to be constantly modified and restated, as more and more of the apparent gaps in the process are satisfactorily filled in by new scientific discovery. That God is either in it all or not in it at all is a conclusion which the Christian should readily accept.

Moreover, if we accept this view, then we are entitled to study the process not only from its origin but from its end, from the present and even the future as well as from the past. It will be a change if, instead of thinking only forward from the beginning, in terms of radiant energy and its subsequent transformations, we can on occasion study evolution backwards from the level of Christ and his saints, and see how far we can trace back the story of those qualities which are fully displayed in them. To do so will surely reveal to us the significance of certain aspects and phases of evolution, which only become relevant when judged in relation to future developments.

The outline that we have given of the evolution that has led up to man and to the coming of Christ throws some light on the problems which are specially pressing upon us today.

We have already alluded to the first of these—the scale and seeming ruthlessness of the universe. The newly discovered immensities of time and space, which are now contrasted with the threescore years and ten and the six feet of earth which pertain to each one of us, have a tremendous and daunting effect on many men. It is difficult to take ourselves and our existence seriously when we are so numerous and so insignificant.

In fact, of course, this type of argument rests more on feeling than on reason. It makes more difficult the delightful anthropomorphism of earlier times; the long-bearded elderly deity with the cross and the dove, whom we see in medieval pictures and church windows, has ceased to appeal. But once this imagery is abandoned, the difficulty of belief is not, for most of us, seriously affected. If science has given us a new idea of the very large, it has also, by enabling us to see the potato virus, introduced us equally to the very small. And in any case, size has nothing to do with value. If it brings back to us a measure of that humility which men of old felt when faced with the desert or the ocean, its effect may well be salutary. Our

theology still suffers from the swelling pride of humanity and its consequent claims to omniscience and infallibility.

The other two, the problems of suffering and of sin, are of much greater importance; and no one who has experienced the heartbreak and perplexity that can accompany them will dismiss them lightly. There are, and for us ordinary folk always will be, occasions when the shattering enigma of suffering or the monstrous sinfulness of sin leave us dumb and confounded. There is a point for all of us where the mystery remains veiled: perhaps only the Crucified can see it as it is.

But, when that is said, it remains plain that what is merely an inexplicable outrage, a blot upon creation, if God is the Potentate or the Engineer, becomes at least less incongruous if he is to be described by the analogy of parenthood. Even we, human parents, know that the child cannot be treated as a thing; if we pamper it in our sentimentality or break it by our domination, we do it irreparable injury; if a child is to grow up, it cannot be sheltered from all risks or deprived of all responsibilities; if it is ever to be fit for self-surrender, it must first acquire a self by the painful passage from the herd-companionship of childhood to the solitariness and self-discovery of adolescence.

If this be a true experience, it would seem that God as love cannot, without being false to his own nature and purpose, treat his creatures as though they were chessmen, pieces that he can move about just as he wills; when Jesus said, "I call you not slaves but my friends" (see John 15:15), he raised and changed the traditional idea of the relationship of God to man. But this involves allowing to the creature even at its lowliest phase a measure of alternative response, and of the power to choose between one course and another. Errors of choice were made long before the chooser was aware of any sense of responsibility; and by its choices its own character and destiny were to some degree at least affected. The process, as sensibility

increases, becomes more complex: the immediate and unconscious decision becomes less simple as wider prospects and a larger range of possibilities open up before it. But there is a long way to go before anything like awareness of the scope and perception of the consequences of an action enters into consciousness, and again a long way before any clear plan can be traced. Perhaps only with the coming of pain does the need for considered choice become gradually realized; and pain in any sense that we can appreciate is hardly in evidence before the level of bird life. It may be that we can only speak of free will, in a sense analogous to our own experience, when there are signs of the weighing of alternatives and a deliberate choice between them.

But, whatever the stages of the process, freedom develops in correlation with sensitiveness and with awareness of the results of action. Until there is anticipation of pain and a sense of guilt for wrongdoing, we must be careful in importing into the animal world human motives and emotions; and though both of these conditions may be fulfilled to some small extent among the higher mammals, it is only with the coming of man that they become significant and determinative.

It is worth insisting in conclusion that, with regard both to pain and to sin, our traditional attitude has suffered from a too individualistic outlook. So long as we ignore our membership one of another, the question "Why should I be the one to suffer?" and the protest "I've sinned—yes, and I shall have to pay the penalty; but I'll take my punishment like a man" sound reasonable. Only as we realize that we really are members one of another shall we see their false assumptions. In the case of pain it is surely evident that a world devoid of suffering would be hideously subhuman—it would be a world without compassion, without forgiveness, without any true joy or any real sensibility, a smug world, a slack world, a loveless world. If the cross is a true symbol of salvation, we shall some

day become aware that it is not the soldiers or the statesmen, the scientists or the ecclesiastics who save it, but those who suffer in it and for it. In the case of sin it is even more evident that, while we pass sentence on ourselves by the choices that we make, we cannot ourselves bear the consequences of our errors. I choose evil; and the taint infects first those whom I love most. I am punished; but the bitterest part of my punishment should be the suffering that my sin brings upon the innocent.

That is the drama of the cross: men sin and Christ is crucified; Christ suffers and sin is overcome. It is a symbol woven into the whole stuff of creation and revealing the way of evolution as in some sort a *Via Crucis*, a "Way of the Cross," a Road to Calvary.

Chapter 9

The Fellowship of the Holy Spirit

IF WE ARE RIGHT in our interpretation of the character of the natural order, and in the claim that the nature and purpose of God as seen in it is congruous with belief that Christ shows us the true image of God, then this would seem to be a powerful vindication of the truth and relevance of Christianity.

St. Paul was not satisfied with the conviction that the gracious gift of Christ guaranteed for us the love of God and constrained us to transform the traditional ideas of the deity. He went on to insist that it also disclosed and initiated a new fellowship and community among men. This fellowship differed from all previous societies, in that its principle was neither economic nor political, nor in the narrow sense religious, but organic. It involved the emergence of a new type of corporate life, the indwelling and integration of all the constituent members by a single unifying Spirit, the Spirit of Christ, the Spirit of God. It could thus be properly called the Body of Christ; for it stood to him in an intimate and vital relationship as the instrument by which he manifested his presence and continued his work in the world.

We have already seen how this fellowship came into being as the end product of the ministry of Jesus. Out of the shared loyalty and the shared failure of his disciples came their experience of forgiveness and commissioning, their acknowledgment of their Master's divine status, and the consequent cleansing of their own pride and ambitions. But it is necessary to examine the event that happened on the day of Pentecost, so that we may study and test its character and significance. The matter is important not only in its bearing upon our main subject, the interpretation of Christianity in a scientific age, but in itself, since the whole future of democracy may well depend upon our ability to disclose and to reproduce the conditions which make possible the emergence of a creative community.

One immediate difficulty has to be noted. The account of Pentecost and the description of the quality of the earliest church (Acts 2:1-13, 42-47 and 4:32-35), as they are given by St. Luke, have been exposed to much criticism both on account of their description of the gift of tongues and of their praise of the unity and community of the church.

It will be generally agreed that if the account of the speaking with tongues in the Acts is compared with the much more detailed description of it in the fourteenth chapter of First Corinthians, certain differences are evident. St. Luke writes, with the exception of a single sentence (Acts 2:13), as if he was describing "the gift of diverse languages," the miraculous ability to speak foreign languages without learning them. St. Paul obviously describes an ecstatic utterance "in an unknown tongue," which those who were in close fellowship with the speaker could interpret into normal speech. It may be that this latter is what St. Luke meant: it is a not unfamiliar symptom of psychic excitement and evidently St. Paul did not regard it as of high religious value (1 Corinthians 14:5, 19).

But, whatever the difficulties in the details of St. Luke's

account of Pentecost, his general account of the earliest church is validated both by that church's remarkable effectiveness and by the evidence of the Epistles. That the little community of Christians possessed a source of creative power quite unprecedented is obvious from the speed of their evangelism, the quality of their lives, and the heroism of their deaths. These obscure and lately faithless disciples, outcast members of an outcast race, carried the gospel in less than a generation from Calvary to the palace and gardens of Nero, and made a notable impact in those few years upon the Roman Empire. That is one of the miracles of history.

It is true that the circumstances of the time favored them. The "Roman peace" had cleared the roads of brigands and the seas of pirates, and for a brief span gave good government and leisure to the Western world. The Jew could find in almost every large city a synagogue and settlement of his compatriots, and so a starting point for his mission. Greek was the common language even in Rome itself, and at that period could be understood by educated men from Gibraltar to the Euphrates. But the strategy that could take advantage of these conditions, and the fortitude and zeal that could overcome all the obstacles and temptations of the adventure, are in themselves evidence of the amazing power which Jesus had promised (Acts 1:8) and which the gift of the Spirit had bestowed.

Moreover, both St. Paul and St. John in their Epistles bear out the Lukan record; they testify that here in this Christian community was a passion and a creativity of a quite unique kind, and that beneath their activities was a quality of love, new and distinctive, which welded together the individual believers into a single and fully integrated whole. *Agape*, the untranslatable name given to this love, is the theme of St. Paul's most splendid utterance (1 Corinthians 13) and of St. John's constant exhortations: it is essentially a new word for a new experi-

ence, and its quality is faithfully reflected in St. Luke's Gospel and Acts.

What then happened at Pentecost? The supernatural accompaniments, the wind and flame, are those invariably associated with profound spiritual events: in such events men are convulsed as by a power external to themselves, which leaves them breathless and shaken; they are illuminated, if not blinded, by what can only be described in terms of a flaming light. Wind and fire may be metaphors; they are the only possible imagery for the expression of what happens when God manifests himself to us. But they, like the wordless speech that followed, are only the secondary effects. The vital fact was the fusing together of the assembled company into one community; the revelation to each and all of their oneness in Christ; the immediate awareness of one another's thoughts and emotions; the throb and inspiration of a unifying and enabling life. In that moment of the Spirit the Christian Church in its true nature was brought to birth; the "glorious liberty," the perfect fusion of freedom and service, was attained in the family of God.

Those who have passed through any experience at all comparable with this, or who have considered and analyzed the conditions which prepared for it, will realize that it is in fact closely parallel to what happens to the individual in his moments of integration. We all know how under the influence of an intense emotion the whole self can be set free from distraction and the wastage of inward conflict and flooded with an overwhelming rush of energy, which releases physical or mental powers beyond all normal possibility and at the moment apparently unlimited. "I can do all things in him who strengthens me," said St. Paul (Philippians 4:13); and though he was no doubt thinking rather of the daily and manifold burdens of his ministry, he had plainly known occasions on which seemingly miraculous inspiration had been given to him.

A common and compelling loyalty, a release from self-

concern, the challenge of an impossible adventure, the sense of power sweeping the community on to the fulfillment of its task—these are the conditions which Jesus gave to his followers; and they are those which are essential for a truly creative fellowship. Psychology, before it became engrossed in the analysis and treatment of distortions and diseases, had made these elementary facts about the integration of the individual sufficiently familiar. It is one of the most evident needs of our society that further scientific study should be given to similar problems of integration in the life of a society; and a thorough examination of the phenomena of group-life is still to be desired.

For anyone who has given thought to our present corporate life, whether communistic or democratic, will be aware of the immense practical importance of a right understanding of it—the sort of understanding which science and historical research could combine to provide. The subject is so relevant both to our theme and to the present world problem as to be worth investigation.

If we look at modern Communism, for example, we cannot but see (along with much that we must condemn) evidence of a creative power in the community and a zest and energy in the individuals which is capable of astonishing effectiveness. Nothing is more absurd than to suppose that such results follow from mere tyranny or terror, or from the dominance of a handful of “very wicked men.” The leaders may be unworthily deified; the ideals may be selfish, acquisitive, mistaken; the means employed are often detestable; the “golden age” may be illusory, or if attained, unpleasant: but that a common loyalty, a common devotion, a common purpose, and a common energy are uniting and inspiring great masses of common people in Russia and China and producing in them, despite their denial of God, the effects of a great religious movement, can hardly be denied. Whether it can in fact survive without a deified leader and a secret police, without purges, liquidations, and slave-labor, without deliberately fostered

hatred and falsification, remains to be seen. If we took more trouble to understand its basic philosophy, we should be in a better position to answer such questions. In any case, to caricature its achievements and dismiss the whole phenomenon as merely diabolical, or to talk about its results as if they deserved nothing but destruction, is to revert from civilization to hysteria and from Christianity to barbarism.

With democracy the case is different. As practiced in the West, it has grown in a Christian soil, and like science has been largely the product of Christian ideas and ideals. But, although it provides the right background and to some extent at least the right organization for the emergence of a creative community, it does not in fact show much sign of producing any such result. An examination of its methods reveals a plain reason for this failure.

It is certainly well that in any society there should be freedom and opportunity for the representation and discussion of different points of view. Totalitarianism, if it means the sacrifice or suppression of all that the past three hundred years of individualism have gained for mankind, is rightly to be condemned. But if representation means the political dogfight, if at its best it can do nothing better than government by committee, it is not easy to accept. The theory which selects a number of delegates each pledged to a particular position and expects them to reach a satisfactory conclusion can only invite one or other of two possibilities. Either, as is common, the partnership of chairman and secretary, and the form in which the agenda is drafted, make it almost certain that the official view will prevail, in which case the committee's work is little more than window dressing to promote the sale of the result; or discussion will produce the sort of compromise that represents the highest common factor of the opinions expressed—and this may well take the form of decisions less satisfactory than any individual member left to himself could provide.

It is this weakness which has led to the claim that man is moral, society immoral; to the fear that democracy is always weak and dilatory; and to the search for "a moral equivalent for war," since only in wartime are the folks who sit on committees lifted out of their partisanships, inspired by the thrill of a shared adventure, and so enabled to work together creatively.

These very obvious reflections upon the present social organization of the West underline the importance of that type of corporate and vital fellowship which the community of the earliest church manifested and which Christians, if they are true to their inheritance, should hold in trust for the world. To make that trust available by recovering in the church itself the quality of fellowship which once characterized it, would be both to do a mighty service to the world and to enable the restoration within Christendom of its early splendor. But though the need is obvious and immediate in a day of such evident urgency, when the three basic groupings of mankind—race and class and sex—are being revolutionized, it is not our present business to consider it. Our concern is merely to urge that here, in the understanding of what St. Paul called the fellowship of the Holy Spirit, there is a subject of high importance and one to which scientists and particularly psychologists might well contribute.

In fact, of course, it has to be reluctantly acknowledged that subjects of the kind which any consideration of the creative community involves have been largely ignored both by scientists and by Christians. The person and work of the Holy Spirit have long been recognized as the most neglected part of theology; and even now, when their importance has been continually announced, little work of any originality or distinction has been done upon them. Probably the chaos in psychology and philosophy makes it particularly difficult to treat a subject for which their fields must be laid under contribution. But now that biology is beginning to study behavior, it is obvious that

its prejudice against religion will not last long. When it is abandoned, science and religion may well find in the investigation of the activity of the Holy Spirit their first opportunity for co-operative work.

Meanwhile what we Christians can do is to develop a sense of the reality of the divine indwelling in the saints, in ourselves, and in nature. Here in our doctrine of the Spirit is the point at which we should be able to join with all who display those fruits of the Spirit, "love, joy, peace, patience," and the rest, of which St. Paul wrote (Galatians 5:22). We can claim for them, even if they will not claim it for themselves, that insofar as they bring forth fruit and are to that extent led by the Spirit (Romans 8:14), they are in fellowship with us, are indeed organically united with us.

We can go on to claim that not only is the Spirit given honor in the Old Testament as brooding over the waters at the creation, as inspiring Bezalel the craftsman (Exodus 35:30-31), and Samson the hero, (Judges 13:25), and as speaking in the prophets, but is manifested in nature at every level in the beauty and order and worth of the creation, and in its power to lift us up into the acknowledged presence of God. Moreover, the record of "the Acts of the Spirit" in the Bible constantly suggests parallels with Bergson's poetic but impressive interpretation of the *élan vital* or life-force in his *L'Évolution Créatrice*. It seems more than likely that the resemblance which we found between the order of nature and the person of Christ would also be traceable if we compared the immanent energy of the Spirit in the creative process with the work of the same indwelling Spirit in the religious history of mankind. When Sir Thomas Browne in his *Religio Medici* said that there were two sources from which the Christian could gain knowledge of God, the Book of Nature and the Book of Scripture, he may have written more truly than he knew.

In any case, to recover a fuller sense of the presence

of God in his world, of the oneness of the three modes of his action which we know as creation, redemption, and sanctification, and so to face the future with faith rather than fear, hope not despair, and love instead of ever stimulated hate, would be to provide the conditions for a true religious revival. At present we seem to spend much of our energies even in the churches in trying to exclude God from his own kingdom, to fence that kingdom about so that the majority of his creatures are shut out from it, and to claim proprietary rights in its possession and administration for ourselves. If the study of science in relation to religion does nothing else, it will at least restore to us a truer sense of our own status. We shall recover the ability to say with the psalmist, "O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches" (Psalm 104:24, A.V.); and such confession may deliver us from too exclusive a concern with ourselves and our own problems.

GLOSSARY OF TECHNICAL TERMS

(as used in this book)

"Act of God": in legal language, the action of uncontrollable natural forces (e.g., lightning) in producing an accident.

Aesthetics: that which has to do with the understanding or appreciation of that which is beautiful.

Agnostic: the name proposed by T. H. Huxley in 1869 for the view that human beings do not and cannot have any knowledge of anything which cannot be grasped by the physical senses; and that therefore any knowledge of God is impossible.

Anatomy: the science of the structure of animal or human bodies (contrast *Physiology*).

Anthropology: the science of the nature of man (esp. in theology, the nature of man as created by God and in relation to him).

Anthropomorphism: the use of terms naturally applicable to men in speaking of God.

Atheistic: a view which regards God as being not merely unknowable, but absolutely nonexistent.

Bacteria, Bacteriology: tiny, single-cell vegetable organisms found in decaying matter; and the science which deals with them.

Bestiaries: books about beasts, written in the Middle Ages, full of strange, legendary, and untrue stories.

Biology: the science of the physical life of living things.

Brachydactylous: having unusually short fingers and toes; a characteristic which can be passed on by heredity in families.

Christology: the doctrine of the person of Christ, with special reference to the relation between the divine and the human in him.

Cosmogony: a theory as to the way in which the universe came into being.

Cosmology: a theory as to the nature of the universe and of the general laws which govern it.

Cosmos: the universe considered as an organized whole.

Electronics: the study of physics at the level of atomic analysis.

Faculty psychology: the treatment of emotion, intellect, and will as three separate and disparate elements of the human personality.

Gamete: one of the cells in the reproduction process, through which the characteristics of a parent can be transmitted to the offspring.

Genetics, Geneticist: that part of biology which is concerned with heredity and variation; the scientist who pursues this special study.

Herbal: an old term for a book containing the names and descriptions of plants.

Heredity: inheritance; especially the inheritance, in living beings, of qualities or characteristics derived from parents or ancestors.

Indeterminacy: the principle that the actions or reactions of an object or being are not entirely determined by pre-existent conditions, but are in part at least the expression of free response or choice by that object or being.

Larynx: the upper part of the windpipe, containing the vocal cords, by means of which sounds are produced.

"Light-years": the speed at which light travels has been calculated to be 186,000 miles a second: a "light-year" is the distance which light will travel in a year.

Luminiferous ether: the medium through which it was believed that the waves of light were propagated.

Mesmerism: (from Austrian physician F. A. Mesmer, 1734–1815): the system under which, through “animal magnetism” exercised by one person on another, a hypnotic state of unconsciousness and insensibility to pain could be produced.

Physiology: the science of the normal function of living things (contrast *Anatomy*).

Psychogenic: produced not by any material cause or influence but by the *psyche*, the mind or spirit of man, as distinct from his body.

Ravin: the act of seizing and devouring prey.

Robot: in Capek’s play *R.U.R.*, the robots were mechanical men and women made by men; so the word is used of beings which act automatically, and without inner freedom.

Sorbonne: the faculty of theology in the University of Paris, which in the late Middle Ages was, with Oxford, the greatest center of Christian thought in the world.

Spontaneous generation: the belief, now everywhere given up, that living organisms could come into existence “spontaneously” from nonliving matter.

Taxonomist: a scientist, whose special interest is the classification of the phenomena which are the objects of study in that part of science with which he is concerned.

Teleology: purpose or design in natural phenomena; or, the study of the evidence for the existence of such purpose or design.

Virus: a minute body, which is the cause of disease in living objects, vegetable or animal.

Viscera: the internal organs of the trunk, i.e., of the lower part of the body.

Zoroastrianism: the ancient religion of Persia, of which the chief tenet was that the world is the scene of an unending conflict between the forces of darkness (Ahriman) and of light (Ahura Mazda).

ANNOTATED LIST OF NAMES

ALBERT of Cologne, ?1206–1280

German Dominican and scholastic philosopher. He inspired great esteem for Aristotle, whose works he paraphrased; and he was also learned in experimental science, geography, medicine, zoology, and botany. St. Thomas Aquinas was one of his students.

BACON, Roger, ?1214–1294

English scholar who lectured in Oxford and Paris and whose main interests were philology, mathematics, and optics. His understanding and grasp of all sciences allowed him to foresee the possibilities of many later inventions, e.g., “flying machines” and gunpowder.

BERGSON, Henri, 1895–1941

French philosopher for whom intuition was the only way of discovering the true nature of things, and whose philosophy of existence broke away from traditional concepts. His best known work was called *Creative Evolution*.

BRAHE, Tycho, 1546–1601

Danish astronomer who established an observatory in Denmark under the patronage of Frederick II, but later moved to Prague. His theories struck a compromise between the Ptolemaic system, which made this earth the center of the universe, and the Copernican view (see Copernicus).

BROWNE, Sir Thomas, 1605–1682

English author and physician. His *Religio Medici* asserts his right to be guided by his own reason when no guidance is given by Scripture or by church teachings.

BRUNO, Giordano, ?1548–1600

Italian philosopher. A proud independent man, he was finally excommunicated and burnt at the stake. He was influenced by both Stoics and Neoplatonists; his early pantheistic views were later modified, the universe appearing as the realization of the Divine Mind.

BUCKLAND, William, 1784–1856

Dean of Westminster, whose life was primarily devoted to a geological study of England, the fruits of which were published in his *Bridgewater Treatise*.

BUFFON, Georges Louis Leclerc, Conte de, 1707–1788

French naturalist. His *Natural History* made many isolated and apparently disconnected facts clear and intelligible. Although not a profound or original investigator, he did much to arouse popular interest in natural history.

COPERNICUS, 1473–1543

Polish astronomer who studied medicine, mathematics, and canon law, as well as astronomy. His main contribution to astronomy was the elaboration of the theory that the sun and not the earth is the center of the solar system, by which man's outlook on the universe was fundamentally changed.

COUÉ, Émile, 1857–1926

French psychotherapist, who claimed that he taught others to heal themselves by means of autosuggestion. His was the saying: "Every day and in every way I'm getting better and better."

CUDWORTH, Ralph, 1617–1688

English philosopher, recognized as the leader of the group known as the Cambridge Platonists. He wrote condemning materialistic atheism.

DARWIN, Erasmus, 1731–1802

English scientist and poet. Published a treatise on pathology and generation. Grandfather of Charles Darwin.

DESCARTES, René, 1596–1650

French philosopher and man of science, whose energies were directed toward establishing a method whereby truth could be determined, a deductive method derived from first principles. These principles or innate ideas included the ideas of God, and of the self as a thinking thing. He was the author of the saying: "I think; therefore I exist."

pseudo-DIONYSIUS

Writings attributed to Dionysius, the first "bishop" of Athens, though written years later, probably during the fifth or sixth century A.D. The ideas, which had an enormous influence on later Christian thinkers, were concerned with the immanence and transcendence of the "ultimate divine source," both being aspects of a triune God.

ERASMUS, Desiderius, ?1466–1536

Dutch humanist and theologian. As an opponent of all forms of fanaticism, he advocated a common-sense approach to the problems of his day. As a scholar, his edition of the Greek New Testament (1516) is his most important work.

FABRE, Jean Henri, 1823–1915

French entomologist. He lived a secluded life, basing his writings on direct observation of the insect world. His researches into the habits of wasps led him to theories of intuitive behavior.

FREUD, Sigmund, 1856–1939

Austrian psychologist. He was the founder of psychoanalysis, and made three main discoveries about the human mind: (1) the existence of the unconscious or subconscious mind; (2) the forces at work in the mind—to one of which he gave the name repression; (3) the influence and importance of the sex-instinct at an early age of human development.

GALILEO, Galilei, 1564–1642

Italian astronomer and philosopher. Among his discoveries, the timing of a pendulum's swing, the fact that bodies of different weights fall with the same velocity, and his proof of the Copernican theory of the solar system through the development of the telescope are the most prominent. His views

on the movement of the earth were censured by the church, and he was condemned by the Inquisition to prison.

GALTON, Sir Francis, 1822–1911

English anthropologist and explorer. His interests included the science of eugenics—the methods for the best development of the human race through the production of the finest offspring from the most suitable parents.

GEOFFROY SAINT-HILAIRE, Étienne, 1772–1844

French naturalist. Held the theory that all animals are formed of the same elements, excessive development of one almost always being at the expense of another. Even organs which are superfluous in any given species are retained as rudiments, thus testifying to the permanence of the general plan of creation.

GESNER, Conrad, 1516–1565

German-Swiss author and naturalist, a man of universal knowledge. Published a remarkable catalogue in Latin, Greek, and Hebrew of all past writers with titles of their works. In the zoological field he wrote a history, which is the foundation of modern biology.

GROSSETESTE, Robert, ?1175–1253

English statesman and philosopher—Bishop of Lincoln. He was an advocate of the reform of morals and discipline within the church, and a supporter of liberty of the national church against the pretensions of the Papal Curia. His commentaries on Aristotle contributed to the revival of learning in the West, and to the first beginnings of the scientific spirit.

HAECKEL, Ernst, 1834–1919

German biologist, who became professor of comparative anatomy at Jena. He was the counterpart of Charles Darwin in Germany, taking the doctrine of evolution to its extreme in that he believed that the soul as well as the body of man was produced by evolution from earlier animal species.

HUSS, John, 1369–1415

Bohemian reformer. His preaching followed Wycliffe's theology, and this brought him into conflict with the Roman Catholic Church. He was finally burnt at the stake for heresy.

HUXLEY, Thomas Henry, 1825–1895

English biologist. A firm believer in Darwin's theories of evolution, he did original research on classification. His later life was taken up with public affairs and he exerted considerable influence on the new state education system introduced in 1870.

HUYGENS, Christiaan, 1629–1695

Dutch mathematician, astronomer, and physicist. He invented the pendulum clock, presenting his first clock to the Dutch parliament in 1657. In the sphere of physical optics, he did original work in the development of the wave theory of light.

KEPLER, Johann, 1571–1630

German astronomer. Professor of science at Graz, and also Brahe's assistant at Prague. His lifework was the foundation of a new astronomy in which physical cause replaced arbitrary hypothesis.

LAPLACE, Pierre Simon (Marquis de), 1749–1827

French mathematician and astronomer. He did much to explain the movements of planets and the stability of the solar system.

MENDEL, Johann Gregor, 1822–1884

Abbot of Augustinian monastery in Czechoslovakia. His main work lay in experiments that led to a theory of heredity, by which he explained how various characteristics of plants and animals are passed on from generation to generation, and the proportions in which they are likely to be found in succeeding generations.

METTRIE, Julien Offray de la, 1709–1751

French physician and philosopher; he asserted that psychical phenomena were the results of organic changes in the brain and nervous system. A materialist and atheist, he contended that virtue is merely self-love; the soul is only the thinking part of the body, and with the body passes away.

PALEY, William, 1743–1845

English scholar and divine. Lectured on moral philosophy at Cambridge University. His best known work was *The Evidences of Christianity*.

PHILO

First-century A.D. Jewish philosopher. Profoundly influenced by the Greek philosophers, his writings were aimed at gaining the respect and if possible the acceptance of Judaism by the Greeks. He regarded the Old Testament, especially the five Books of Moses, as the absolute Divine Authority, but interpreted many parts of them in an allegorical fashion.

PLINY (the Elder), A.D. 23–79

Roman naturalist who died during the great eruption of Vesuvius, which he had gone out to see. A man of wide learning, he is best known for his *Natural History*.

PLOTINUS, A.D. 204–270

Native of Egypt, founded a school at Rome. Philosopher of mysticism, who combined a genius for philosophical study with intimate personal mystical experience. In him was the greatest expression of Neoplatonism. His writings, especially that part of them which dealt with mystical experience, exercised immense influence on Christian thought.

RAY, John, 1627–1705

One of the greatest of English experimental naturalists. Made much headway in distinguishing and classifying plants. He published various botanical and zoological works. His *Wisdom of God in the Works of Creation* is his best-known book.

REDI, Francesco, 1626–1694

Italian biologist. In 1688, he disproved by experiment the theory of spontaneous generation—i.e., the view that living creatures can be produced from nonliving matter.

SERVETUS, Michael, 1511–1553

Spanish physician and theologian. Evolved his own theology, based on the eternity of the Son, with the denial of the doctrine of the Trinity. He was persecuted by Calvinists and

Roman Catholics alike, and was finally burnt as a heretic in Geneva.

WEISMANN, August, 1834-1914

German biologist. Devoted his early life to zoological inquiry. Later turned to wider problems, and wrote papers attacking the variability of organisms. Author of germ-plasm theory of heredity, involving the denial of transmission of acquired characteristics.

CABBALA

The Cabbala or Kabbalah signifies the doctrines received by tradition; but is generally used of a great body of Jewish philosophical and mystical speculation. The Kabbalistic system now known goes back to the eleventh century, although it is probably much older. The Kabbalah's purpose was to explain the connection between a finite universe and an infinite God, to account for the existence of evil and to point to the way through which perfection in life may be obtained.

SUFIISM

This name was applied in the ninth century to a sect of Moslem Mystics who were called Sufis on account of the clothes they wore (*suf* meaning wool). Influenced by Christianity, Neoplatonism, and Buddhism, Sufiism developed into an organized system with strict rules of discipline and devotion. Some expressions of Sufi mysticism come very near to Christian faith.